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REPORT

ON THE

Medical Department

FOR THE YEAR

1938

GOLD COAST:

Printed by the Government Printer at the Government Printing Department, Accra. To be purchased from the Government Printing Department (Publications Branch), Accra, Gold Coast Colony, and from the Crown Agents for the Colonies, 4 Millbank, London, S.W.1.

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Price—Four Shillings

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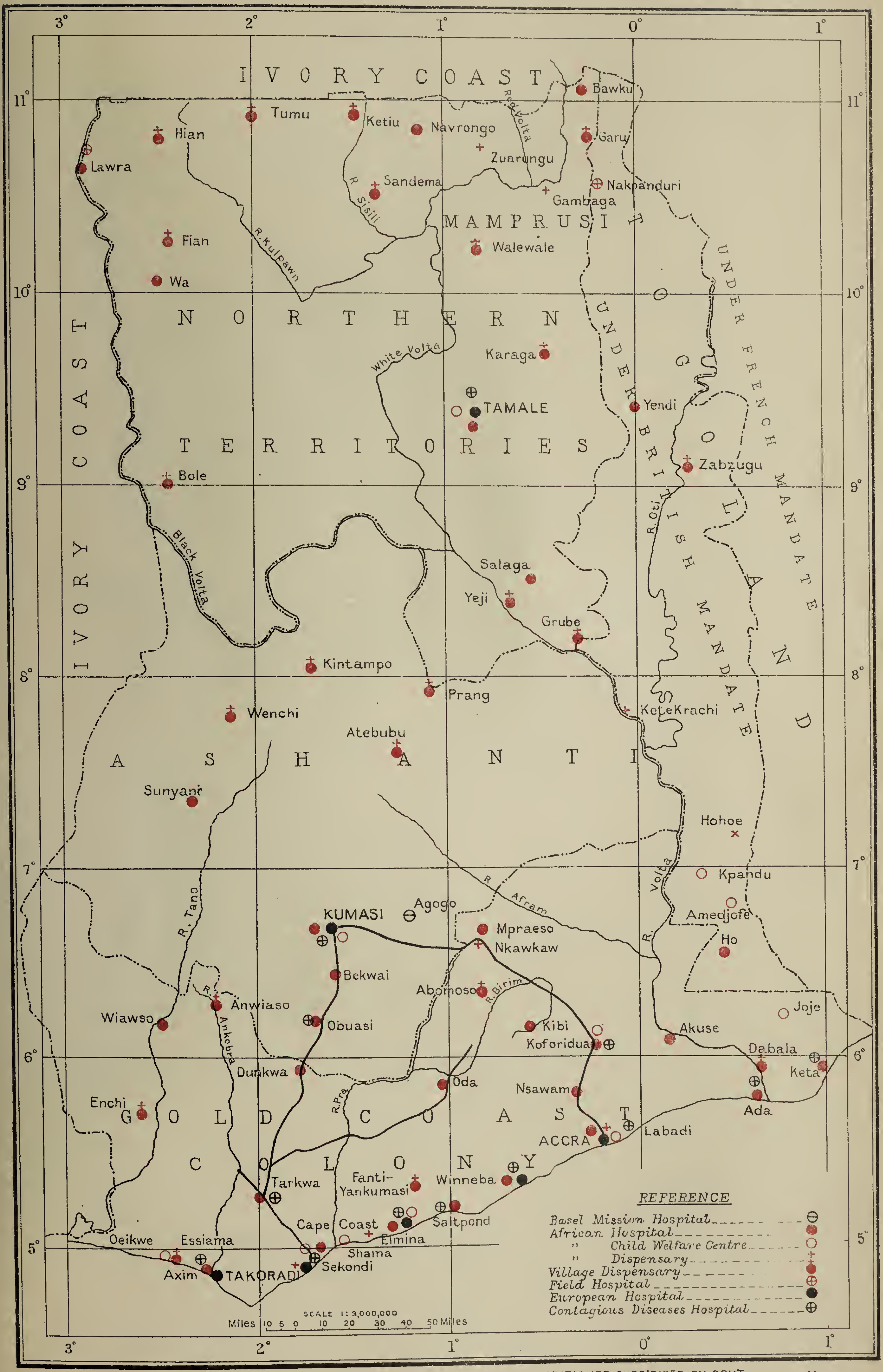
Map of the Gold Coast showing medical facilities.

THE GOLD COAST MEDICAL FACILITIES MAP.



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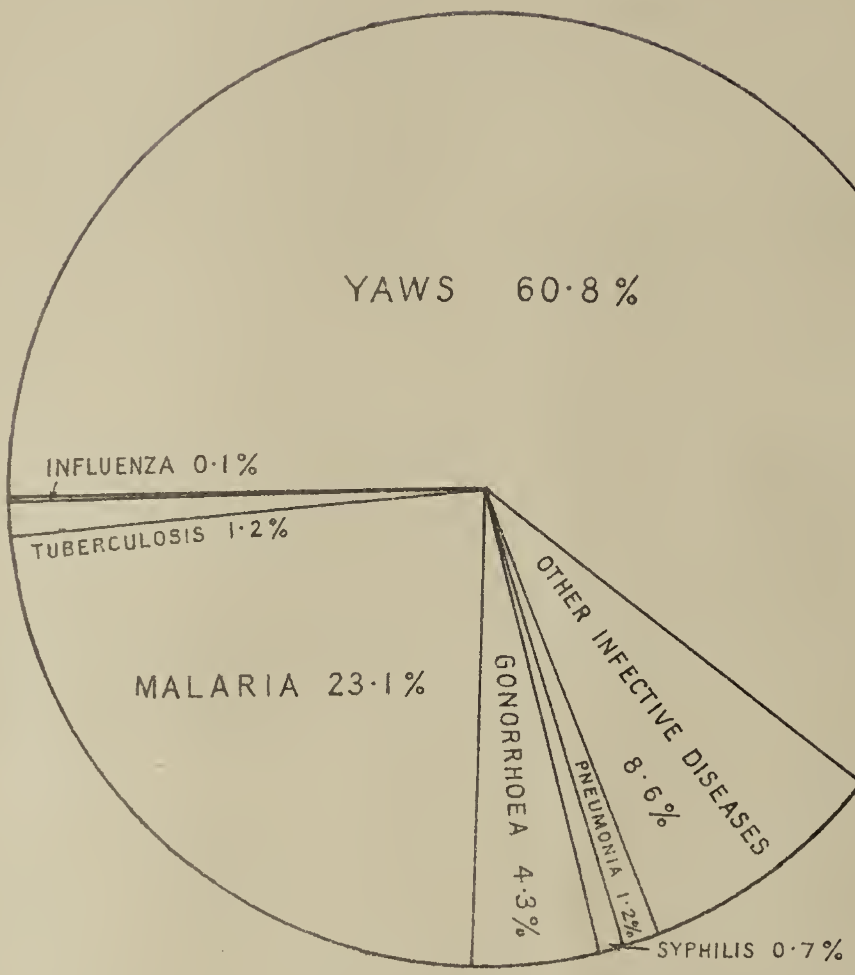
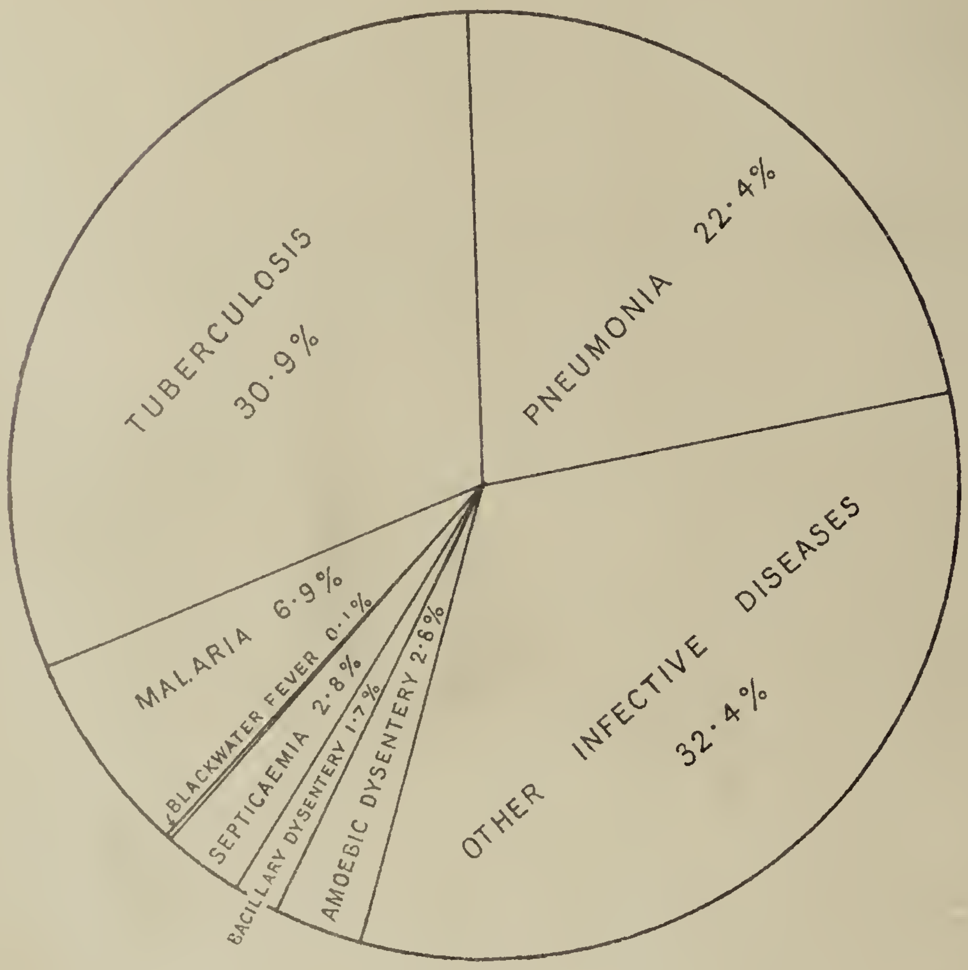
DIAGRAMS SHOWING THE INCIDENCE OF VARIOUS DISEASES.

Infective Diseases, total cases treated in 1938 = 124,154.

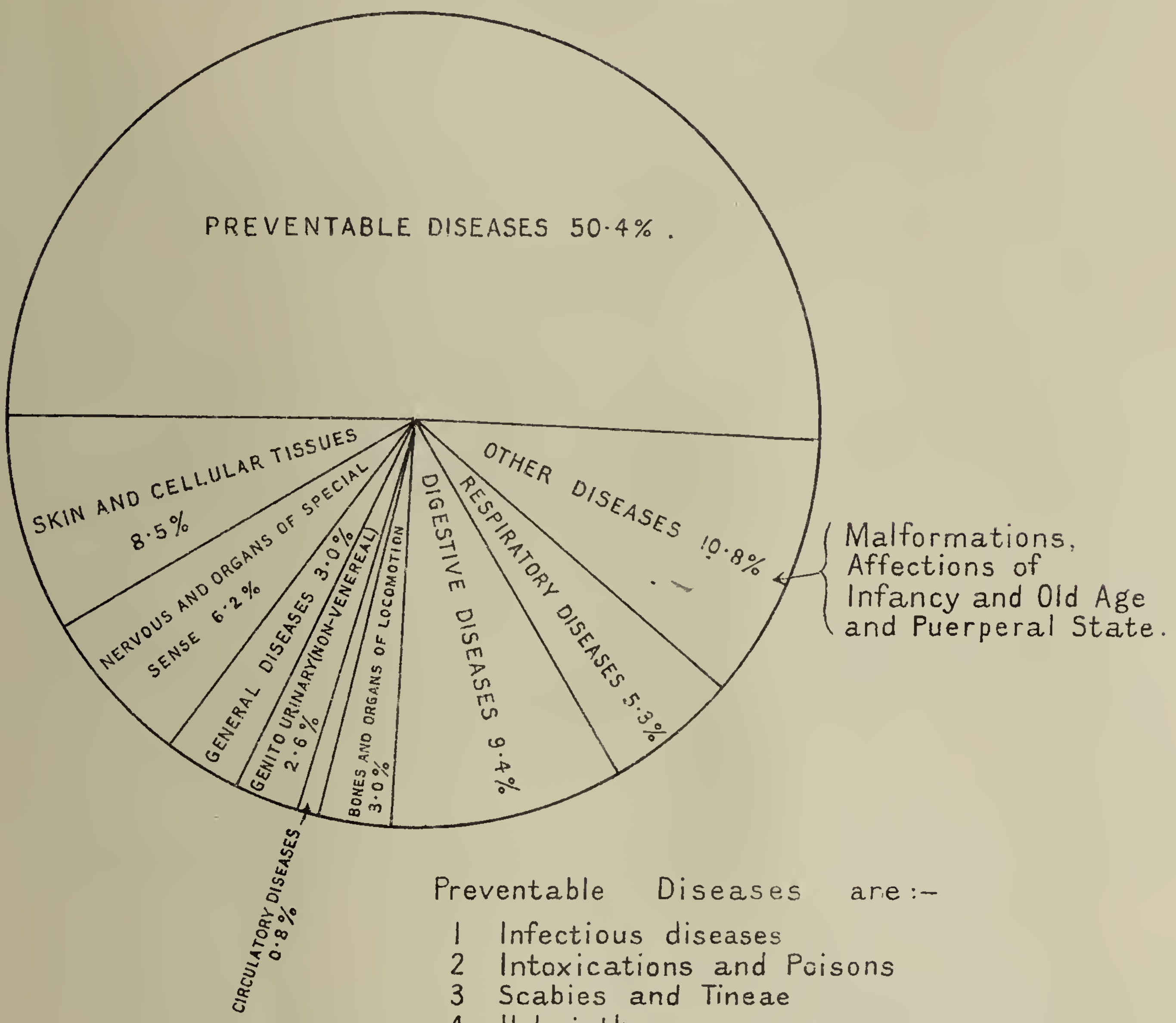


Infective diseases include all diseases under heading "Epidemic Endemic and Infectious Diseases" plus Pneumonia.

Total deaths in in-patients (infective diseases) = 811.



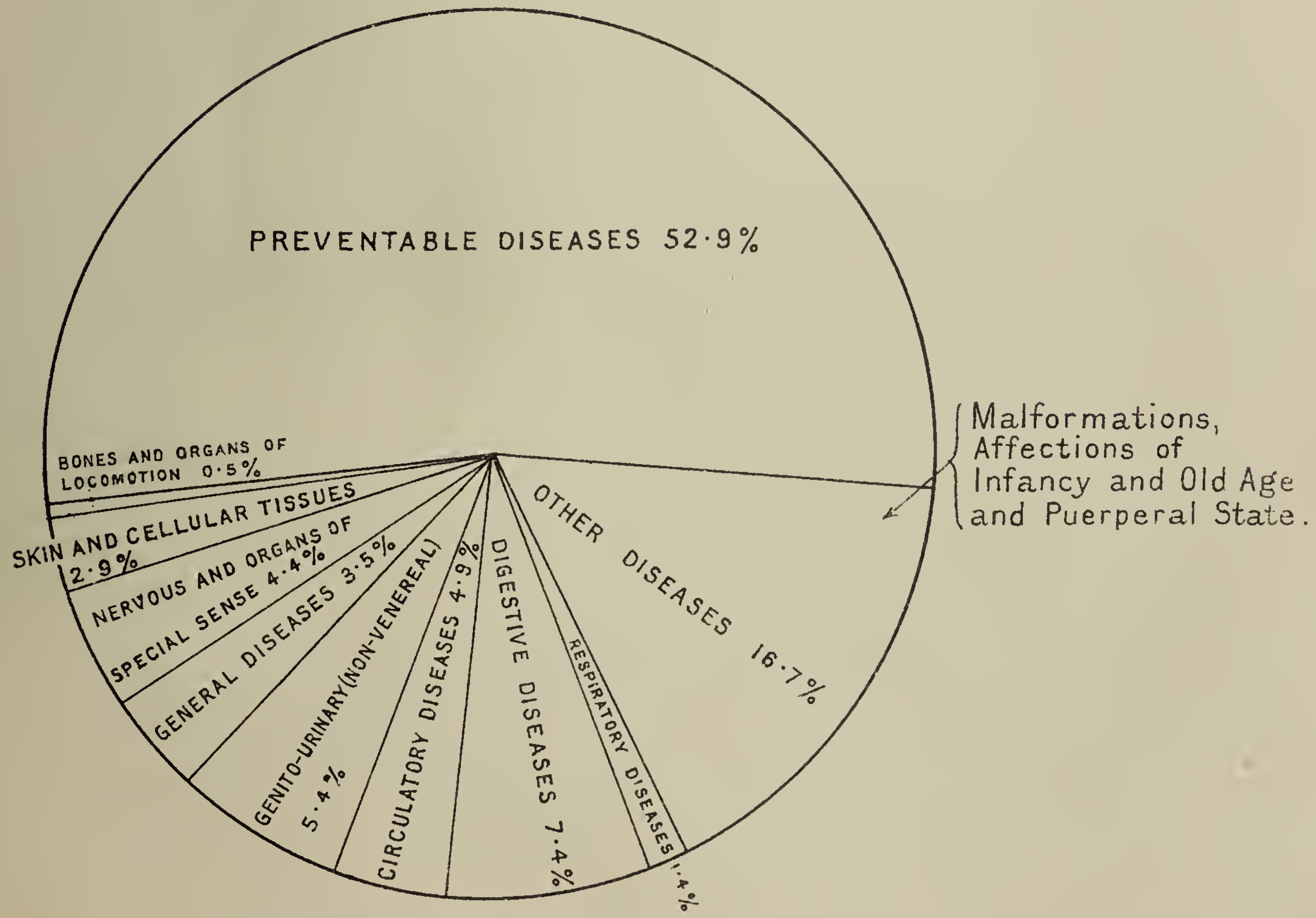
General Systemic and Preventable Diseases, total cases treated in 1938 = 323,990.



Preventable Diseases are:-

1 Infectious diseases
2 Intoxications and Poisons
3 Scabies and Tineae
4 Helminths
5 Affections produced by external causes.

Total deaths in in-patients (all causes) = 1945.



SURVEY H.Q.ACCRA,1939.

Annual Medical and Health Report for the Year 1938.

I—ADMINISTRATION.

(*a*) **Staff—Medical, Health and Laboratory Branches.**

(*a*) MEDICAL BRANCH.

European Staff.

Appointments :—

Medical Officers : Dr. A. H. Chenard de la Giraudais, Dr. J. S. Minett, Dr. J. R. S. Innes.

Nursing Sisters : Miss I. F. Aldridge, Miss W. K. Kirby.

Analytical Chemist : Mr. G. R. Howat.

Promotions :—

Deputy Director of Medical Service : Dr. A. M. Wilson Rae ; Assistant Director of Medical Service : Dr. C. B. Jennings from Sierra Leone ; Senior Specialist : Dr. A. M. Gillespie ; Senior Medical Officer : Dr. W. N. Greer to Sierra Leone ; Matron : Miss A. E. MacMaster, M.B.E., from Sierra Leone.

Transfers :—

Medical Officer of Health : Dr. Robert Ramsay to Health Branch ; Senior Nursing Sister : Miss E. J. Cordiner, from Nigeria.

Retirements :—

Deputy Director of Medical Service : Dr. G. E. Craig ; Medical Officer : Dr. J. Byrne ; Analytical Chemist : Mr. R. W. Clarke ; Senior Nursing Sister : Miss C. E. Robinson ; Nursing Sisters : Miss M. M. McCarthy, Miss A. M. Pearton, Miss C. Flett.

African Staff.

Appointments :—

Junior Medical Officer (Gold Coast) : Dr. I. J. Amorin.
2nd Division Dispensers : Two.
2nd Division Nurses : Twenty.
Nurses-in-training : Thirty-one.

Promotions :—

Medical Officer (Gold Coast) : Dr. C. H. Bannerman.
1st Division Dispenser : J. A. Sackey.
1st Division Dispenser : S. D. Bennett.
1st Division Nurse : S. O. Adu.

Deaths :—

2nd Division Dispenser : F. K. George.
2nd Division Nurse : R. A. Anthony.
2nd Division Nurse : J. C. A. Attoh.

Retirements :—

Medical Officer (Gold Coast) : Dr. H. Mercer-Ricketts.
1st Division Dispenser : One.
2nd Division Dispensers : Two.
1st Division Nurse : One.
2nd Division Nurse : One.
Nurses-in-training : Twelve.

(*b*) **Legislation affecting Public Health.**

2. Various orders were made during the year under the Infectious Diseases Ordinance, declaring the following places and districts infected :—

As a result of outbreaks of—

(*a*) *Smallpox*	... Ahanta-Nzima District, Dunkwa, Anamabu, Sefwi and Kpoglo.
(*b*) *Yellow fever*	... Ho, Atua Manya, Wangasi Turu, Salaga and Kpembe.
(*c*) *Cerebro-spinal meningitis*	... Bawku and Navrongo.

3. The provisions of the Mosquitoes Ordinance were applied to the following places or areas: Oda—Manso Area, Otrokpe, Anyaboni, Kwasimintim, Kwasimintim Zongo, Apremdo, Chito, Kpetoe, Anaji, Fijai, Efia, Swedru Area, Mankessim and Enyarmem.

4. The provisions of the Towns Ordinance were applied to Peki, Domiabra and Takrowasi ; and were revoked with respect to the town of Bibianiha. Orders-in-Council were made, under the Towns Ordinance, defining the town boundaries of Kpong and Agona Swedru. Regulations were made under the Ordinance for the control of Oda and Adoagiri markets.

5. Orders-in-Council were made during the year, under the Mining Health Areas Ordinance, declaring the following mining areas :—

Bibiani (1927) Limited.
Bibiani North.
Tano Gold Dredging Company, Limited, Aowin Disuaboi and Upper Wassaw-Nkara Concession.
Bremang Gold Dredging Company, Limited, Pepaye Dredging Mining Area.
Gold Coast Banket Areas Limited.
African Manganese Company, Limited, Nsuta.
South Banket Areas, Limited.
Tarquah and Aboso Mines, Limited.
Holland Syndicate Takrowasi-Kusi.

West African Diamond Syndicate Concessions :—

Supon No. 3
Supon No. 2 (Parcels 1 & 2),
Supong No. 1
Kokotisua
Atiakumbra " A "
Atiakumbra " B " (Blocks 1 & 2)
Atiakumbra.

6. The following mining health areas were, also, declared :—

Bibiani (1927) Limited.
Bibiani North.
Tano Gold Dredging Company, Limited, Aowin Disuaboi and Upper Wassaw-Nkara Concessions.
Bremang Gold Dredging Company, Limited, Pepaye Dredging Mining Area.
Tarkwa Common Mining Health Area.
Holland Syndicate Takrowasi-Kusi.
West African Diamond Syndicate—Atiakumbra and Supon Concessions.

7. Regulations were made under the Mining Health Areas Ordinance to permit of the rapid zonal declaration of mining health Areas ; and the clauses of the Towns Ordinance dealing with the demolition and repair of houses were amended and clarified.

8. Orders-in-Council were made during the year under the Vaccination Ordinance :—

(*a*) Adding Western Akim district to Schedule 1 :
(*b*) Amending the Schedule to Principal Order by adding the following districts : Obuasi, Bekwai and Ashanti Akim.

(*c*) Finance.

9. The total revenue earned by the Medical Department (all branches) during the year 1938 amounted to £69,928 as compared with £69,472 in 1937.

10. The total ordinary (i.e. recurrent) expenditure for the Colony was £3,359,769.

11. The total ordinary (i.e. recurrent) expenditure for Medical Services (all branches) was £349,981 as compared with £339,721 in 1937. This figure is exclusive of the cost of building, e.g. hospitals, dispensaries, etc., and other public health works such as water supplies, town improvements, etc.

12. The ratio of the ordinary expenditure on Medical Services to the total expenditure of the Colony was 11·59 per cent as compared with a ratio of 12·58 per cent last year.

13. A detailed financial statement for the year appears at Table II of the Returns.

14. The following table shows the ordinary (recurrent) expenditure under the Heads Medical, Health, and Research over five years, as compared with the total ordinary (recurrent) expenditure for the Colony.

TABLE I.

Branch.	1934 (Actual).	1935 (Actual).	1936 (Actual).	1937 (Actual).	1938 (Actual).	1939 (Estimated.)
	£	£	£	£	£	£
Medical	159,414	169,000	180,768	201,170	200,875	219,794
Health	115,781	117,199	124,142	131,060	141,984	158,382
Research	7,063	7,232	7,503	7,491	7,122	7,824
Total	282,258	293,431	312,413	339,721	349,981	386,000
Total Colony	2,334,844	2,603,096	2,337,357	2,701,522	3,020,234	2,966,885
Percentage of total to Colony total	12·09	11·27	13·37	12·58	11·59	13·01

II—PUBLIC HEALTH.

(*a*) General Remarks.

(I) HISTORICAL SURVEY.

1937.

15. During the year the worst outbreak of yellow fever occurred since 1927. There were 75 reported cases and 69 deaths. The brunt of the outbreak fell on the African community in the Eastern Province. Four fatal Syrian and two fatal European cases occurred. The prolonged dry season and consequent shortage of water in the villages made the epidemic difficult to control.

16. Owing to this outbreak, the full extent of which it is difficult to estimate, and to climatic, economic and other causes, the general improvement recorded in 1936 suffered a setback. An increase took place in the general and infantile mortality rates.

17. The work of the department has been increasing year by year for very many years. A comparison of the figures for the past three years shows the steady rise in the demand for treatment. In 1935, 273,476 patients received attention. This figure rose in 1936 to 311,211 and in 1937 to 330,092. Thus in two years there has been an increase of 56,616 patients or over 20 per cent.

18. Twenty-one dispensaries conducted by African staff dealt with 52,078 out-patients during the year, an average of nearly 2,500 each.

19. The new hospital at Cape Coast was begun during the year and progress was made with the Tuberculosis Block at the Gold Coast Hospital, Accra, and with the extension to the hostel for midwives.

20. The trypanosomiasis survey was organised and began work in the latter half of the year.

21. Draft Townships and Public Health Ordinances were under consideration.

1938.

22. No serious epidemic occurred during the year.

23. The general improvement noted in 1936 has been maintained, and a further noteworthy improvement can be recorded, as shewn by the decline in the general and infantile mortality-rates.

24. The figures for respiratory and intestinal diseases shew a definite reduction in incidence and mortality.

25. Of the factors which contributed to this decline the almost complete absence of the harmattan during the year was important. Another factor of importance was the drop in the number of immigrant labourers, who generally arrive in an undernourished or diseased condition. This restriction in immigration was a sequel of the cocoa hold-up.

26. The large fall in the number of cases of yaws seen is very encouraging.

27. On the other hand the figures for the invalidings of European officials have increased to an extent which causes much concern. The number is the highest recorded, and reports of medical officers indicate that nervous strain owing to the increasing volume and complexity of work is one of the chief factors.

28. The results of the modern treatment of various diseases by the parenteral injection of specific drugs have been so dramatic that a belief in the efficacy of injections for every ailment under the sun has become widespread. Certain unscrupulous persons not qualified in medicine have in consequence taken advantage of this belief to travel round the country giving injections and charging heavy fees to the ignorant and credulous, often with disastrous consequences. A new problem has therefore arisen, for Government itself has found it necessary in certain areas, owing to the limited number of medical officers available for the country and the urgent need to treat yaws, trypanosomiasis, etc., to delegate the task of giving injections to trained subordinate staff. This problem of unqualified practice was discussed at a conference of senior officers of the Medical Departments of the four West African Colonies held at Lagos in November, and it was resolved that legislation on the lines of a recent Nigerian Ordinance to regularize and to control the administration of injections by those not registered as medical practitioners should be introduced without delay into the other Colonies. It is hoped therefore to introduce the necessary legislation during 1939.

29. The extension to the hostel for midwives to take 16 additional pupils was completed.

30. Considerable progress was made with the Tuberculosis and Infectious Diseases Block at the Gold Coast Hospital, Accra, and with the new African Hospital at Cape Coast. Both will be opened during 1939.

31. Seven new village dispensaries were opened during the year, one in the Colony, one in Ashanti and five in the Northern Territories.

32. The number of tubes of quinine tablets distributed at Post Offices continues to increase.

33. Work on the trypanosomiasis survey in the north proceeds satisfactorily and the control measures based thereon which have been initiated are already yielding encouraging results.

34. Conditions are still unsatisfactory at the lunatic asylum owing to overcrowding. A site for a new asylum had been selected near Kumasi and plans to build were in course of preparation when an unexpected political difficulty arose concerning the site which has delayed progress.

35. It is hoped that the Draft Township and Public Health Bills, which are at present being revised in certain respects, will shortly be introduced into the Legislative Council.

(II) FACTORS AFFECTING PUBLIC HEALTH DURING 1938.

36. The pronounced falls in the death and infantile mortality-rates as well as the falls in the maternal mortality and the still-birth rates are noteworthy. The decreases in the totals of deaths from serious infectious diseases and from starvation are also worthy of note.

37. The annual death-rates during the years 1934 to 1938 inclusive fluctuated between 25·5 and 22·1 and with a large floating population such fluctuations are to be expected.

38. The amount of immigration over the land frontiers may be estimated from the numbers of immigrants cleansed at the Kumasi disinfestation station. These dropped from 38,106 in 1936 to 22,378 in 1937 and to 15,168 in 1938. The fall was a sequel of the cocoa hold-up in 1937 when many labourers could not obtain payment of their wages from the farmers and had to return to their homes unpaid. Owing to the lack of confidence caused thereby a further shortage of labour occurred in 1938.

39. Steady improvement has been taking place, especially in the larger centres, in the conditions under which the stable sections of the population live, but to cause a further drop in the death-rate, which is deeply influenced by the presence of immigrant labourers, more attention to the care of this class, the individuals of which arrive in an under-nourished and often diseased condition, is greatly needed.

40. The Chief Inspector of Labour has this problem under close consideration at present and plans to provide lorry transport and a chain of "refuges" at strategic points; other measures, too, are being worked out. A soundly organised scheme of assistance to this deserving class during its journeys south would go a long way to combat the adverse influence of its presence on the annual death-rate and would be a health measure of the first importance.

41. At page 8 under the head "Vital Statistics" are given various figures which substantiate the above remarks and in Section III will be found a more detailed survey of factors affecting public health.

42. The fundamental fact which stands out clearly year after year is that further advance is held up owing to the lack of effective control of the rural areas, and that until this is gained the constant menace of the introduction of infectious diseases into the towns will remain.

43. With regard to European officials the adverse effect on their health caused by the increasing volume and complexity of the work being undertaken nowadays is noted below under (*b*) Vital Statistics (III).

SPECIFIC DISEASES: INSECT-BORNE CONDITIONS.

Malaria.

44. Malaria as always retains its important position as a health problem. Hospital figures, as in so many other diseases, give anything but a complete picture.

45. In Takoradi European Hospital, where the actual number of cases admitted as malaria was 159, it was found that out of a total of 378 in-patients 341 or 90 per cent had parasites in the blood.

46. If this careful enquiry be taken as an index it is evident that the number of people harbouring parasites is far in excess of those seeking treatment.

47. The predominating type is aestivo-autumnal but its reaction to treatment varies greatly in different localities. A type extremely resistant to treatment with quinine and atebrin is known to exist at Takoradi, and a similar type has lately been reported also from Winneba.

48. Hospital figures show a decrease from 30,533 in 1937 to 28,720 in 1938. This number, however, is still markedly in excess of the 1936 figures.

49. The percentage of cases of malaria to all cases treated was 9·2 in 1937 and 8·8 in 1938 respectively.

50. The distribution of quinine through Post Offices and Native Administrations in the Northern Territories continues and is of great value.

51. During the last three years 40,901, 80,655 and 87,880 tubes were sold through Post Offices, a fact which indicates clearly that the people are realising more and more the effectiveness of quinine as a protection against malaria.

52. In the Northern Territories some 45,000 tubes were distributed through the Native Administrations.

Yellow Fever.

53. Fortunately the year 1938 was free from any epidemic of this scourge. Twelve deaths were recorded at hospitals.

54. Further research work on the method of protective inoculation has resulted in the elimination of hepatitis following inoculation and no untoward results were seen in any case given protection by the new method in 1938.

55. We can envisage at no distant date the practice of mass inoculation in the field in West Africa—but this does not mean that the warfare against the mosquito vector can be relaxed in any way.

Trypanosomiasis.

56. The following table gives particulars of cases treated in hospitals, dispensaries and camps during the year and comparative figures for the last 10 years :—

TABLE II.

Year.	Cases.	Deaths.	Incidence per 10,000 cases treated.	
			Medical Branch only.	All cases.
1929–30	121	23	6·6	4·9
1930–31	224	16	10·5	8·9
1931–32	250	28	12·6	9·7
1932–33	685	45	33·1	29·1
1933–34	1,179	77	56·1	47·3
1934	1,973	112	91·3	77·5
1935	3,885	106	177·8	143·5
1936	4,820	132	179·3	155·1
1937	5,162	156	183·3	156·4
1938	5,085	151	179·0	156·9

57. The number of deaths actually registered showed a further drop from 175 to 157.

58. The following table indicates the most important centres in which the disease showed a high incidence amongst the disease treated :—

TABLE III.

Station.	YEAR.			
	1935.	1936.	1937.	1938.
Nakpanduri	1,631	1,165	735	686
Garu	—	59	120	113
Lawra	1,161	944	1,242	1,107
Walewale	—	586	638	729
Kumasi	249	411	306	258
Bawku	194	274	286	292
Tamale	157	149	196	239
Sunyani	95	119	155	136
Wa	103	93	181	387

Note.—The above table does not take into account cases seen by the field survey and treatment teams.

59. A full account of the work of the Trypanosomiasis Campaign is given in Appendix V and is of considerable interest.

60. The salient points which emerge are :—

(*a*) the steadily decreasing incidence of the disease in Mamprussi ;

(*b*) the value of clearings, which has been demonstrated conclusively by the decreasing incidence of infection amongst females ;

(*c*) the extreme importance of the period of maximum spread of the fly.

61. The situation is now more satisfactory ; spread has been checked and we can look forward to obtaining effective control within a reasonable period of time.

OTHER CONDITIONS.

Yaws.

62. There was a marked decrease in the numbers of cases of yaws treated during the year in the hospitals and dispensaries. The total for 1938 (75,519) shows a drop from the previous year (83,684) of more than 8,000. The percentage of cases of yaws treated to the total cases treated fell from 25·3 per cent in 1937 to 23·3 per cent in 1938.

63. The fact that a considerable number of sufferers are being treated in the villages by Native Administration dressers accounts for part of this decrease, as also the fact that the disease is decreasing steadily in the urban areas.

64. Yaws still remains, however, a serious problem.

65. The geographical distribution of yaws in the Northern Territories mentioned in last year's report remains the same, and it is a question of scientific interest why the north-eastern portion should shew such a low rate of infection as compared with the areas immediately to the south and west.

Tuberculosis.

66. The seriousness of this problem needs no stressing. It has now resumed its place at the head of the list of killing diseases.

67. Out of a total of 453 cases of pulmonary tuberculosis 226 deaths occurred, i.e. a mortality of 50 per cent.

68. Hospitalisation with complete rest and nourishing food in early cases arrests at least temporarily the progress of the disease, but the vast majority of cases are first seen in an advanced stage and progress rapidly towards a fatal termination.

69. The high mortality figures in the asylum, associated as they are with overcrowding, demonstrate clearly at least one cause of the disease. The eradication of tuberculosis will necessitate better housing and better living conditions generally, or in other words a definite raising of the economic standards of the people. The dangers of the evil spitting habit must be better realised.

70. It is hoped that the large new Tuberculosis Block at the Gold Coast Hospital, Accra, will be ready for occupation in the first half of next year, and also that X-ray facilities will be available at Tarkwa.

TABLE IV.

Year.	Cases treated.	Percentage mortality in in-patients.	Ratio per 100,000 of all cases treated.
1934	1,269	43	496·1
1935	1,268	47	463·7
1936	1,600	45	514·4
1937	1,385	46	419·6
1938	1,460	45	450·6

Leprosy.

71. A full account of the work at Ho Leper Settlement is given at Appendix III. It has not been possible up to the present to extend treatment by the provision of small camps elsewhere.

72. The average daily number of cases in the Yendi Camp is about 16. They are happy and contended. The great difficulty, however, is to get the early infective cases to enter the camp.

Pneumonia.

73. There has been a very large decrease in the number of cases of pneumonia treated this year and also a further drop in the number of deaths. 1938 has, indeed, proved a remarkable year. The fatalities from respiratory diseases have been extremely few, and this cannot be wholly explained by the practical absence of the harmattan. The total number of cases of pneumonia fell from 2,114 in 1937 to 1,523 in 1938. This represents a decrease from 640 per 100,000 in 1937 to 470 per 100,000 in 1938. Spectacular results in treatment were observed from the use of M. and B.693.

74. A reversal of position in the killing disease list has taken place with tuberculosis. Pneumonia which last year headed the list with 13 per cent of total or 29·9 per cent of infective cases has dropped this year to 9·4 per cent of total or 22·4 per cent of infective cases.

75. Tuberculosis which represented in 1937 9·8 per cent of the total or 22·6 per cent of infective cases rises to the figure of 12·9 per cent of the total or 30·9 per cent of infective cases.

Dysentery.

76. The position here has been very similar to that noted with regard to pneumonia.

The total number of cases in 1938 was 1,544 with 44 deaths as compared with 2,110 cases with 57 deaths in 1937, or a reduction in cases per 100,000 from 639 to 476.

Enteric.

77. The number of cases recorded this year was 110 as compared with 129 in 1937, i.e. a decrease of 14·6 per cent. It is, however, probable that many more cases occur than are seen in the hospitals.

Ankylostomiasis.

78. Here actual hospital figures are of little value. The numbers who reported sick with symptoms of ankylostomiasis are small—but routine examination of stools reveals a very high percentage of infection.

79. Ankylostomiasis here as elsewhere on the West Coast, although seldom presenting the classical signs of the disease, is the direct cause of much ill-health and by lowering resistance makes the patient an easier victim of other infections.

Venereal Diseases.

80. Hospital figures in the Gold Coast give no true index to the incidence of gonorrhoea. Comparatively few report the condition and it is rare to get the full co-operation of a patient in the treatment of its less acute manifestations.

81. Because of this the sequelæ of the disease such as arthritis, stricture, etc., appear in very much larger numbers than in Europe.

82. A considerable amount of working time is lost and disability ranging from general ill-health to actual crippling often results.

83. Gonorrhoea is responsible for a great deal of chronic ill-health among female Africans.

84. Syphilis is not a common disease. In parts of the Northern Territories it is only seen among the indigenous population in those who have returned from the mines or from the larger urban communities.

Road Accidents.

85. The rapid increase in the numbers of mechanically propelled vehicles leads yearly to a greater toll of injuries and deaths.

86. In some districts the frequency and seriousness of motor accidents has thrown a very heavy additional burden on Medical Officers—and this burden is becoming steadily greater year by year. In certain cases the numbers have trebled in the last two years.

(*b*) **Vital Statistics.**

(1) GENERAL NATIVE POPULATION.

87. Certain important figures taken from the Annual Summary and Report on the Vital Statistics of the 35 Registration Areas (embracing some 340,600 head of population) of the Principal Registrar of Births, Deaths and Burials appear below. All rates are crude :—

	1937.	1938.
Total population (mid-year)	3,703,517	3,789,909
Population of registration areas	333,159	340,600
Birth-rate (weighted average) per 1,000	33·7	33·1
Death-rate (weighted average)	25·3	22·1
Crude Infantile mortality-rate	117	102
Still-birth-rate (per 1,000 births)	50	47
Maternal mortality-rate	15·8	14
Deaths per 1,000, respiratory (non-tuberculous) diseases	165	152
Deaths per 1,000 pulmonary tuberculosis	94	101
Deaths, intestinal diseases	98	94
Deaths, malaria	75	79
Starvation	50	28

(II) GENERAL EUROPEAN POPULATION.

88. The total number resident increased from 4,328 in 1936 to 4,791, in 1937. A further increase took place in 1938 as may be seen from the table below.

TABLE V.

	Numbers resident in		Increase or decrease.
	1937.	1938.	
(i) Government officials	901	931	+ 30
(ii) Employees of trading firms	1,865	2,000	+135
(iii) Employees of mining companies	1,683	1,726	+ 43
(iv) Missionaries	342	318	— 24
Total	4,791	4,975	+184

89. An inspection of the invaliding and death-rates shows that whilst there has been a drop in the death-rates of both officials and non-officials and a drop in the invaliding rate of non-officials a marked rise in the invaliding rate of officials took place.

(III) EUROPEAN OFFICIALS.

90. The number of invalidings of European officials in 1938 gives rise to deep concern. The number invalided (71) is an increase of 23 over last year and is the highest ever recorded, if one goes back over the records to 1912.

91. The percentage is double what it was ten years ago. It is 220 per cent more than it was 15 years ago (when the average number resident was the same as in the year under review) and 300 per cent in excess of the rate for 1913.

92. The number whose invaliding is attributed directly or indirectly to functional nervous diseases is very high, and this is a problem which is receiving the close consideration of Government.

93. The death-rate has dropped to a percentage of 0·4 of the average number resident as against 1·1 in 1937.

TABLE OF COMPARISON.

	1933-34.	1934.	1935.	1936.	1937.	1938.	Average 1933-37.
Percentage of invalidings to average number resident ...	6·8	4·8	8·4	7·9	7·6	10·3	7·1
Percentage of deaths to average number resident ...	0·48	0·33	0·2	1·3	1·1	0·4	·68
Average sick time to each resident	7·8	8·2	9·8	8·2	8·7	9·5	8·5

TABLE VI.

SICK, INVALIDING AND DEATH-RATES.

	1936.	1937.	1938.
Total number of officials resident	865	901	931
Average number resident	607	632	690
Total number on the sick list	487	585	559
Total number of days on the sick list	5,001	5,532	6,579
Average daily number on sick list	13·6	15·2	18
Percentage of sick to average number resident	2·2	2·4	2·6
Average number of days on sick list for each patient	10·3	9·4	11·8
Average sick time to each resident	8·2	8·7	9·5
Total number invalided	48	48	71
Percentage of invalidings to total resident	5·5	5·3	7·6
Percentage of invalidings to average number resident	7·9	7·6	10·3
Total deaths	8	7	3
Percentage of deaths to total resident	0·9	0·7	0·3
Percentage of deaths to average number resident	1·3	1·1	0·4

TABLE VII.

Invalidings and Death-rates.

	Average number resident.	Invalided.	Percentage invalided.	Died.	Death-rate per 1,000.
1934	599	29	4·8	2	3·3
1935	594	50	8·4	1	1·7
1936	607	48	7·9	8	13·2
1937	632	48	7·6	7	11·1
1938	690	71	10·3	3	4·0
Average for period	624	49	7·8	4·2	6·7

94. The causes of deaths of European officials during 1938 were :—

Lacerated wounds of the scalp and fracture of the skull, Bronchitis and acute myocardial failure	1
Intestinal obstruction	1
Hyperpiesis	1
Total	3

95. The causes of invalidings of European officials during 1938 were :—

Hysteria	1
Mental strain	1
Psychastenia	1
Epididymitis and neurasthenia	1
Malaria S. T. and nervous debility	1
Neurasthenia	2
Anaemia	1
Phlebitis	1
Thrombo-angiitis obliterans ...	1
Hyperpiesis	1
Appendicitis	1
Enteritis	6
Chronic dyspepsia	1
Dyspepsia and flatulence ...	1
Stomatitis	1
Amoebic dysentery	1
Colitis	1
Hernia	2
Gastritis	1
Cholecystis	2
Gastric ulcer	1
Malaria M.T.	4
Blackwater fever	1
Insomnia	5
Nervous debility	1
Peripheral neuritis	1
Debility	4
Myocardial degeneration ...	2
Tachycardia	1
Pyelitis	1
Gonorrhoea	1
Sinusitis	1
Sinusitis and malaria	1
Paralysis agitans	1
Optic atrophy	1
Dermatitis-chronic	1
Perineum abscess	1
Arthritis	3
Myalgia of leg	1
Cerebral concussion	1
Trypanosomiasis	1
Osteitis of clavicle	1
Asthma	1
Bronchitis	3
Boil	2
Nephritis	1
P. U. O.	1
Total ...	71

(IV) EUROPEAN NON-OFFICIALS.

96. The death-rate, which had increased from 6·1 per 1,000 in 1936 to 6·4 in 1937, fell to 6·2 in the present year. The invaliding-rate which had dropped from 26·2 in 1936 to 25·7 in 1937 dropped still further to 22·5 in 1938.

TABLE VIII.

1937.		Number.	Deaths.	Invalided.	Death-rate per 1,000.	Invaliding rate per 1,000.
Merchants	males	1,205	7	18	5·8	14·9
	females	660	2	4	3·0	6·0
Mining Companies	males	1,564	14	63	8·9	40·3
	females	119	—	4	—	33·6
Missionaries ...	males	199	1	7	5·0	35·1
	females	143	1	4	7·0	28·0
Totals and averages		3,890	25	100	6·4	25·7
1938.						
Merchants	males	1,288	12	28	9·3	21·7
	females	712	3	10	4·2	14·0
Mining Companies	males	1,586	9	39	5·7	24·6
	females	140	—	1	—	7·1
Missionaries ...	males	193	—	8	—	41·4
	females	125	1	5	8·0	40·0
Totals and averages		4,044	25	91	6·2	22·5

97. Causes of invaliding of Non-official Europeans during 1938 were :—

Malaria	19
Blackwater fever	1
Nervous debility	9
Neurasthenia	2
Auto-intoxication	1
Dementia praecox	1
Insanity	1
Cerebral tumour	2
Paronoia	1
Myocarditis	3
Varicose ulcers and general debility	1
Anaemia	1
Bronchitis	1
Pleurisy and phlebitis ...	1
Asthma	1
Pulmonary tuberculosis ...	3
Broncho-pneumonia	1
Phletitis	1
Hernia	1
Duodenitis	1
Duodenal ulcer	4
Amoebic dysentery	3
Appendicitis	3
Gastric ulcer	1
Hepatitis	2
Renal calculus	2
Trypanosomiasis	1
External injuries	3
Gunshot wounds	2
Epilepsy (petit-mal)	1
Chronic eczema	1
Fractures	2
Septicaemia	1
Typhoid fever	4
Otitis	1
P.U.O.	1
Osteomyelitis	2
Arthritis	1
Malignant tumour of larynx	1
Furunculosis	1
Cellulitis	1

Total ... 91

98. Cases of deaths of Non-official Europeans during 1938 were :—

Yellow fever	5
Blackwater fever	3
Cerebral malaria	3
Typhoid	1
Pulmonary tuberculosis ...	1
Thrombosis	1
Duodenal ulcer	2
Hyperemesis gravidarum ...	1
Myocarditis	4
General septicaemia	1
Cancer pancreas	1
Gunshot wound	1
Drowning	1

Total ... 25

(V) AFRICAN OFFICIALS.

99. Table IX calls for little comment.

The percentage of deaths to the average number resident, which had risen in 1937 to ·7 owing to the yellow fever outbreak, dropped back to almost the same figure as that of 1936. The percentage of invalidings to the average number resident has during the past four years, declined slightly from the ·7 figure recorded in 1935.

TABLE IX.

	1936.	1937.	1938.
Total number of officials resident	3,751	3,962	4,068
Average number resident	3,623	3,750	3,880
Total number on sick list	1,182	1,352	1,037
Total number of days on sick list	11,892	13,798	13,587
Average daily number on sick list	32·4	37·8	37·2
Percentage of sick to average number resident	0·6	1·0	0·9
Average number of days on sick list for each patient ...	10·1	10·2	13·1
Average sick time to each resident	3·3	3·7	3·5
Total number invalided	24	22	18
Percentage of invalidings to total resident	0·6	0·5	0·4
Percentage of invalidings to average number resident ...	0·6	0·6	0·5
Total deaths	14	26	14
Percentage of deaths to total resident	0.37	0·6	0·3
Percentage of deaths to average number resident	0·38	0·7	0·4

100. Causes of invalidings of African officials during 1938 were :—

Chronic bronchitis	1
Chronic bronchitis and emphysema	1
Myocarditis	1
Anaemia	1
Cirrhosis of liver	1
Bilateral cataract	1
Defective vision	3
Insanity	2
Paralysis (following cerebral lesion)	1
Paralysis (injury)	1
Paralysis agitans	1
Senility	1
Mental deterioration ...	1
Debility and old age ...	1
Neuro-syphilis	1

Total ... 18

101. Causes of deaths of African officials during 1938 were :—

Peritonitis	1
Nephritis	1
Fistula in ano	1
Septicaemia	1
Cardiac failure	1
Cardiac degeneration ...	1
Cardiac hypertrophy ...	1
Dilatation of heart and beri-beri	1
Pulmonary tuberculosis ...	2
Malignant malaria	1
Motor accident	1
Fractured skull c̄ cerebral hæmorrhage	1
Shock and volvulus	1
Total ...	14

(VI) VITAL STATISTICS OF REGISTRATION DISTRICTS.

TABLE X.

Registration Area.	Population.				Mid-year 1938.	Births.		Birth-rate.		Deaths.		Death-rate.	
	1921.	1931.				1937.	1938.	1937.	1938.	1937.	1938.	1937.	1938.
		Males.	Females.	Totals.									
Aboso	—	3,994	2,587	6,581	6,581*	190	201	28·9	30·5	219	199	33·3	30·2
Aburi	—	2,034	1,666	3,700	3,700*	212	213	57·3	57·6	89	75	24·1	20·3
Accra and Labadi	41,124	32,833	27,893	60,726	74,937	2,985	2,837	40·9	37·9	1,895	1,621	26·0	21·6
Ada and Ada Foah	5,907	2,196	2,254	4,450	4,450*	153	163	34·4	36·6	136	112	30·6	25·2
Akuse	4,145	1,784	1,874	3,658	3,658*	139	160	38·0	43·7	92	85	25·2	23·2
Axim	3,781	2,367	2,166	4,533	5,078	144	139	28·8	27·4	142	129	28·4	25·4
Bekwai	—	2,085	1,654	3,739	3,739*	175	160	46·8	42·8	77	67	20·6	17·9
Bawku	—	2,057	1,695	3,752	3,752*	195	167	52·0	44·5	181	148	48·2	39·4
Cape Coast	14,921	9,603	8,082	17,685	19,689	647	729	33·3	37·0	407	397	21·0	20·2
Dodowa	1,061	1,145	1,077	2,222	3,064	97	114	31·4	37·2	75	51	24·2	16·6
Dunkwa	2,005	1,826	2,134	3,960	5,377	118	128	22·8	23·8	105	99	20·3	18·4
Elmina	5,262	2,186	2,611	4,797	4,797*	229	218	47·7	45·4	131	133	27·3	27·7
Ho	3,142	1,747	1,660	3,407	3,599	139	158	38·9	43·9	106	88	29·7	24·5
Keta	—	3,063	3,342	6,405	6,405*	285	229	44.5	35·8	116	94	18·1	14·7
Kintampo	—	1,339	976	2,315	2,315*	58	64	25.1	27·6	89	81	38·4	35·0
Koforidua	5,364	5,816	4,713	10,529	14,274	562	543	40.9	38·0	420	333	30·5	25·3
Kpong	3,285	1,427	1,477	2,904	2,904*	96	89	33·1	30·6	71	58	24·4	20·0
Kumasi	23,694	21,219	14,610	35,829	44,627	969	1,049	22·3	23·5	879	794	20·2	17·8
Mampong (Ashanti)	2,272	1,386	1,090	2,476	2,624	204	258	78·5	98·3	78	50	30·0	19·1
Nsawam	6,143	4,916	3,966	8,882	10,868	281	244	26·5	22·5	268	216	25·3	19·9
Obuasi	3,917	4,746	2,852	7,598	10,267	96	135	9·7	13·1	266	288	26·9	28·1
Oda	—	3,691	2,448	6,139	6,139*	191	196	31·1	31·9	172	187	28·0	30·5
Prestea	—	1,667	822	2,489	2,489*	134	118	53·8	47·4	135	153	54·2	61·5
Salaga	3,207	2,630	2,196	4,826	6,000	214	215	36·7	35·8	196	159	33·6	26·5
Saltpond	6,342	3,277	3,092	6,369	6,388	306	329	47·9	51·5	150	150	23·5	23·5
Sekondi	9,500	10,020	6,933	16,953	22,356	461	451	21·3	20·2	322	272	14·9	12·2
Somanya	3,428	1,213	1,438	2,651	2,651*	250	274	94·3	103·4	90	57	33·9	21·5
Sunyani	—	1,568	1,243	2,811	2,811*	116	125	41·3	44·5	173	143	61·5	50·9
Takoradi	—	3,393	2,085	5,478	5,478	177	196	32·2	35·8	91	59	16·6	10·8
Tamale	3,901	7,045	5,896	12,941	19,495	410	328	22·1	16·8	237	244	12·7	12·5
Tarkwa	2,671	2,012	1,309	3,321	3,792	100	116	26·8	30·6	264	317	70·8	83·6
Wa	2,810	2,557	2,666	5,223	6,972	238	167	35·4	24·0	270	213	40·1	30·6
Wenchi	4,994	2,849	2,460	5,309	5,537	149	174	27·1	31·4	162	157	29·4	28·4
Winneba	6,980	6,033	4,893	10,926	13,787	514	578	38·4	41·9	327	301	24·4	21·8
Totals and Weighted Averages	169,856	157,724	127,860	285,584	340,600	11,234	11,265	33·7	33·1	8,431	7,530	25·3	22·1

* In the case of towns marked with an asterisk the census population at April, 1931, is taken in lieu of an estimated mid-year population either because the populations of such towns were not enumerated in 1921 or because their populations are decreasing.

Accra and Labadi although, originally, two separate registration areas, are now conveniently taken as being one area, Labadi having been absorbed into the town of Accra.

(VII) TABLE SHOWING THE BIRTHS, DEATHS AND INFANT MORTALITY-RATE AT SIX PRINCIPAL TOWNS.

TABLE XI.

Station.	1934.			1935.			1936.			1937.			1938.		
	Births.	Deaths.	Infant mortality-rate.	Births.	Deaths.	Infant mortality-rate.	Births.	Deaths.	Infant mortality-rate.	Births.	Deaths.	Infant mortality-rate.	Births.	Deaths.	Infant mortality-rate.
Accra and Labadi ...	2,827	1,514	113	2,772	1,696	140	2,969	1,729	118	2,985	1,895	129	2,837	1,621	114
Cape Coast	611	341	76	553	412	110	609	365	98	647	407	98	729	397	85
Koforidua	390	259	107	446	418	188	630	406	127	562	420	87	543	333	83
Kumasi	957	782	117	888	861	148	968	922	139	969	879	139	1,049	794	111
Sekondi	398	275	110	444	307	83	408	282	76	461	322	75	451	272	82
Tamale	504	211	45	593	240	52	535	249	48	410	237	51	328	244	73
Total	5,687	3,382	—	5,696	3,934	—	6,119	3,953	—	6,034	4,160	—	5,937	3,661	—

III—(HEALTH BRANCH) HYGIENE AND SANITATION.

(*a*) General review of work done and progress made.

(I) PREVENTIVE MEASURES.

(i) Mosquito and Insect-borne Diseases.

(*a*) *Malaria.*

	1937.	1938.
*Number of deaths registered	630	598
Percentage of total deaths registered	7·5	7·9
Rate per 100,000 living	189	176

102. Malaria is almost universal, and profoundly affects the morbidity returns from all parts of the Gold Coast. The general standard of physical well-being in the Gold Coast is not high, chiefly because of the ill effects of malaria.

103. Malaria continues, as in the past, to be the most important factor when lost time and labour inefficiency is considered. Every morbid condition throughout life tends to be complicated by it ; and its presence calls for early exclusion before the diagnosis of other febrile conditions can be made.

104. The common vectors—*Anopheles gambiæ* and *Anopheles funestus*—are to be found abundantly, particularly during and just after the rains, almost everywhere save in the heavy forest. The catholic tastes of *Anopheles gambiæ* in the selection of breeding places makes the control of mosquito breeding in the Gold Coast a problem of very considerable difficulty and expense. General, rather than specific, measures are necessary.

105. Again, most of the larger centres in the Gold Coast are of considerable antiquity and occupy classical West African sites extensively complicated by lagoons, or sites consisting of alternating well-drained and low-lying areas, the latter usually accommodating sluggish streams, swamps and pools the drainage of which very often presents considerable difficulties.

106. Man-made malarial problems are to be seen on every hand borrow-pits made during road and railway construction, quarries, offsets from roadside gutters terminating blindly or storm water running into depressions where pooling is inevitable, the concrete drain ending abruptly with no provision for the onward passage of the water, etc.

107. During 1938, permanent drainage systems were initiated or extended at Takoradi, Cape Coast, Tamale, Sekondi, Kumasi (where 2½ miles of new permanent drains and ½ mile of culverts were constructed), and elsewhere.

108. The Kawli Lagoon, Accra, reclamation scheme progressed very slowly, the only labour available for filling being prison labour. The retaining wall construction has now left the filling process considerably in the rear.

109. Towards the end of the year, emergency funds were made available for the rapid filling of an area where mosquito breeding was rife as a result of water collection between the original bank of the lagoon and the newly constructed concrete retaining wall.

110. The permanent opening, provided during 1936, for the Butuah Lagoon at Takoradi, was extended further into the sea in order to prevent obstruction with sand at each tide. A satisfactory result was obtained.

111. In all centres steady progress is to be reported in semi-permanent drainage schemes, swamp-filling, etc. Graded earth drains, however, as the years pass become uneconomical, much labour being required to keep them free from vegetation, to fill pot-holes scoured in the inverts and to trim the sides after falls of earth caused by scouring and under-cutting. Again, open " herring-bone " collaterals, feeding such earth gutters, tend to scour badly in time and their maintenance becomes an expensive matter.

112. The lack of a local supply of cheap agricultural tile drains retards the more general adoption of sub-soil methods of anti-malarial drainage. Until such a supply is available, the more general adoption of this valuable method of drainage must be held up. It is hoped in the future that a supply may be obtained from Achimota College where a pottery industry is being established.

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* Statistics throughout this section of the report are based upon figures obtained from 35 registration areas which include 340,600 head of population out of a total of 3,789,909 for the whole of the Gold Coast, its Dependencies and the Mandated Area of Togoland.

113. In some localities, vertical drainage gave good results; in others, previous tree-planting has illustrated its usefulness by aiding evaporation and by breaking up stiff underlying clay.

114. Anti-malarial measures may briefly be summarised as follows :—

(*a*) Pools and swamps of limited extent are filled, where filling material is available. Indestructible refuse covered with a top-dressing of incinerator ash is frequently utilised for this purpose.

(*b*) Low-lying valleys, liable to swamping, are drained by means of earth drains fed by herring bone collateral systems of feeder drains. Contour drains have proved useful in many instances ; and vertical drainage methods in certain selected localities.

(*c*) Standing water, where drainage has not yet been possible for financial or other reasons, is regularly oiled, or treated with Paris green. Some areas of water, however, are too extensive for these measures and all that can be done is to remove as much vegetation as possible and to define the edges providing an appropriate marginal depth of water.

(*d*) Waterways are cleared of vegetation and their margins rough-trained.

(*e*) In the vicinity of several centres certain areas of water have been stocked with small top-feeding fish.

(*f*) Cases of malaria are treated in hospitals ; dispensaries and clinics, while the use of Government quinine, which can be purchased at any Post Office, is increasing.

(*g*) Education has also played a part, by showing the public how personal protection can be ensured and mosquito bites avoided. From a number of centres, however, it is stressed that Europeans do not take the same precautions as formerly in wearing mosquito-boots after dark and taking routine quinine.

115. Little advance only has been made during the year with respect to the clarification of the problem of the mosquito-proofing of official European bungalows. In certain places, e.g. the Korle Bu district of Accra, protection is desirable, and will remain so for many years to come until extensive anti-mosquito measures, necessitating the expenditure of a large amount of funds, can be completed.

116. Personal inclinations vary within very wide limits. It is not possible to satisfy everybody. The consensus of opinion seems to indicate, in such places where immediate and effective mosquito control is not possible, that complete screening is the method of choice.

117. The complete screening of bungalows which were not designed with this desideratum in view may, however, be an expensive undertaking. Again, complete screening, although almost perfect in theory, in practice depends for its effectiveness very largely on the personal factor of the occupant, the interest he takes in the measure and the intelligence of his house staff. It is difficult to obtain uniform results.

118. The splenic indices of the various centres vary little from year to year. The following are a representative few :—

Accra	16·3
Kumasi	18·2
Cape Coast	24·5
Takoradi	29·9

In all stations where careful records are kept, stress is laid on the decline in the rate as the older groups of school children are reached. The following figures from Kumasi illustrate this : age group " 6–9 years " = 25·0 ; age group " 9–12 years " = 18·1 ; age group " 12–16 years " = 14·3 per centum.

(*b*) *Yellow Fever.*

119. The incidence of yellow fever from 1921 to 1938 is shown in the following table :—

TABLE XII.

Year.	Cases.	Deaths.	Percentage mortality.
1921	4	4	100·0
1922	10	8	80·0
1923	19	16	84·2
1924	8	6	75·0
1925	7	5	71·4
1926	65	18	27·7
1927	107	40	37·4
1928	2	2	100·0
1929	—	—	—
1930	2	1	50·0
1931	17	12	70·6
1932	4	—	—
1933	7	4	57·1
1934	2	2	100·0
1935	7	4	57·1
1936	3	3	100·0
1937	75	69	92·0
1938	15	15	100·0

120. The racial incidence, locality and case mortality during 1938 are shown as under :—

TABLE XIII.

	Colony.			Ashanti.			Northern Territories.			Togoland.		
	Cases.	Deaths.	Mortality.	Cases.	Deaths.	Mortality.	Cases.	Deaths.	Mortality.	Cases.	Deaths.	Mortality.
			Per cent.						Per cent.			Per cent.
European :												
Males	2	2	100	—	—	—	3	3	100	—	—	—
Females	—	—	—	—	—	—	—	—	—	—	—	—
African :												
Males	4	4	100	—	—	—	2	2	100	—	—	—
Females	1	1	100	—	—	—	—	—	—	2	2	100
Syrian :												
Males	1	1	100	—	—	—	—	—	—	—	—	—
Females	—	—	—	—	—	—	—	—	—	—	—	—
Total	8	8	100	—	—	—	5	5	100	2	2	100

Of the fifteen cases which came to light five were European, nine were African and one was Syrian. All were fatal.

121. Although the cases recorded are few compared with the total returned for 1937, yet only five times during the last eighteen years have they been exceeded.

122. As in former reports, it must be stressed that the number of cases which come to light must be a small percentage only of the total number which occur annually. So much of the country is uncontrolled, or only superficially controlled from a sanitary standpoint, that this is inevitable.

123. It is noteworthy that, of the five fatal European cases recorded, no fewer than four were foremen employed by contractors on road construction and repair work in rural areas where mosquito control is not possible.

124. All the cases recorded presented themselves for treatment at one or other of the centres ; and subsequent local investigations failed to trace any extensive implication of the rural areas from and through which they had travelled during the incubation period of the disease.

125. Early in the year there was carried out an important investigation of the water supplies in the Shai, Krobo and Akwapim districts, i.e. of the areas which bore the brunt of the severe outbreak of 1937, which doubtless resulted mainly from the storage of every available drop of water during an exceptionally dry year in a region where, normally, a dry season water shortage is the rule. This report has been commented on by the various Departments interested, and the matter is under the consideration of Government.

126. *Aedes* control necessitates unremitting house-to-house visiting in order to insure inspection of all premises every seven to ten days. It is an arduous duty, and not infrequently when carried out by headmen to whom it is delegated under the Mosquitoes Ordinance and who are paid a daily wage from an open vote, may be done carelessly. The cadre of sanitary inspectors is not strong enough to cover the ground unaided, and reinforcement is, therefore, necessary by means of such headmen or, as they are sometimes loosely termed, " mosquito-inspectors."

127. In all centres where full control is possible, the work of the inspectorate staff is closely controlled by means of " cross," " check " and " massed " inspections. In institutions, police lines, barracks, etc., a weekly system of dry-pot parades continues to give good results. On such parades, every receptacle capable of holding water has to be presented empty of water and thoroughly dried out.

128. Mosquito control requires to be extended in many areas, but with the available inspectorate force it is considered that the limit of control has been already reached and possibly exceeded.

129. Experiments have proceeded throughout the year with a view to the improvement of existing methods of mosquito control, particularly with respect to the adoption of Soper's method of control by means of " mother focus " squads. So far results are not conclusive, and opinions are divided, Trials still continue.

130. During a period in the rains a great increase was noticed in the number of *Aedes ægypti* haunting bungalows in the Accra Residential area where usually they are rarely seen. The trouble was traced to the rise of the sub-soil water in the filter chambers of several septic-tank night-soil disposal systems in the compounds of certain commercial firms, and to a warping of the protective screens. These chambers are now effectively and permanently rendered inaccessible to mosquitoes.

131. In the larger, well-controlled centres the larval index is almost invariably below unity, but scattered breeding foci are usually to be found (a completely *Aedes*-free town can hardly be envisaged in the Gold Coast). In such centres, a case coming from outside in the incubation period of the disease, and taking up his abode in the vicinity of one of these foci may produce a pretty sharp local explosion of cases, but any tendency towards epidemic spread need not be feared.

132. There is some indication that a generation of Africans is arising in these well-controlled centres which must be considered as being hardly less susceptible to yellow fever than the average European.

133. The results of the total house-to-house inspections carried out during the year are shown in the following table :—

Table XIV.

Number of inspections.		Number of premises with larvae.		Larval index.	
1937.	1938.	1937.	1938.	1937.	1938.
2,671,114	2,907,995	13,602	11,693	0·51	0·40

134. Although no case of yellow fever was reported from the mining areas during the year, and undoubtedly mosquito control is better organised both in the areas for which the companies are responsible and also in the surrounding mining health areas than a year ago, a good deal of anxiety is still felt and will persist until the mining industry is completely stabilised and general effective control has been permanently established.

135. As mosquito control is confined to the larger centres and ports and to some of the larger villages and small towns on the main trade-routes, it will be appreciated that as transport facilities grow the uncontrolled smaller places with high larval indices and overgrown perimeters concealing large numbers of potentially water-containing tins, bottles, etc., become an ever-increasing menace both to the country itself and to neighbouring territories.

136. The chances of road-borne infection to regions outside the West African endemic area appear to increase yearly. This method of spread is far more difficult to contend with than air-borne traffic, and although more gradual may for this reason be the more sure.

137. Work continued steadily on the Takoradi and Accra aerodromes. Neither has yet been declared anti-amaryl, but the Accra aerodrome is now nearing completion and has been in regular use throughout the year, the passenger traffic steadily increasing.

138. The complete disappearance from the Gold Coast of *Aedes*-transmitted yellow fever is difficult to foresee. At the present stage of development it is certainly not within sight. As the country becomes opened out and transport facilities increase it is likely that the incidence may even grow until consolidation draws level with rapid development. Whether a bush variety of the disease exists it is hard to say. It may well be so, for some sources of infection are difficult to trace. At the moment, the problem seems to be of but little importance, for all the effort possible up to the present has been a defensive one with a view to the safeguarding of a comparatively few important centres. No active general attack on the *Aedes*-transmitted variety has yet been made, nor at present would this measure be practicable.

139. Preventive measures taken throughout the year may be summarised briefly as follows :—

(*a*) There has been careful mosquito control in the large centres, the ports and in the more important smaller towns and larger villages on the principal trade routes. In the larger centres steadily increasing attention is being paid to the important factor of the trees. These, planted several years ago, suffered severely from unskilled trimming often amounting to mutilation during the period 1931–36, when for reasons of economy it was difficult to provide the necessary supervision and skilled attention. There is no more important source of *Aedes* breeding than mutilated trees in which rot holes have formed and water is retained.

(*b*) Residential areas still provide the most important safeguard for the highly susceptible European. Commercial firms, as the years pass, place increasing faith in these strongholds of safety. In the year under review, more new commercial bungalows have been built in the Accra Residential Area than for many years past. Doubtless the yellow fever outbreak in Accra early in 1937, when all Europeans were advised to remove from the town of Accra and did so without a previous Removal Order, has influenced the building of residences in the area to no small degree.

During the last two years or so, the number of Africans living in the Residential Area has increased very considerably. Each servant may—on the granting of a permit by the local Medical Officer of Health and the fulfilling of certain conditions—have one wife to live with him in the servants quarters. This arrangement has been given a trial over an extended period, and it is now proposed to recommend that it be adopted permanently. Previously, when servants wives were excluded there was a great deal of disregard of this rule, and there were no powers to make the rule effective. Under the present system of servants' wives being allowed to live in the Residential Areas on permit, a considerable amount of co-operation on the part of the residents can be ensured. This co-operation, it is considered, is of more practical value than rigorous exclusion which could not be enforced.

(*c*) A number of Europeans have been protected, by inoculation, against yellow fever. All Europeans, both official and commercial, should be similarly protected. Life in a well-ordered residential area is comparatively secure, but most people have to travel as a part of their duties. Outside a well-controlled centre, infection is possible anywhere. Many of the older rest houses are badly sited in too close proximity to insanitary villages for any degree of safety.

The necessary quarantine measures, during an outbreak of yellow fever, profoundly complicate travelling and trade. From this consideration, in addition to the more important protection of valuable lives, it is thought that all Europeans both official and of the trading community should be protected before sailing for the Gold Coast ; and that the example of the Colony of the Gambia should be followed and the protection of all European officials made obligatory.

140. The necessity for receiving protective inoculation is constantly and insistently kept before the European community both trading and official.

(*c*) *Filariasis.*

141. Filariasis is reported from most stations but in no instance is undue local importance attached to it.

142. Mention is made from Axim, in the Western Province of the Colony and from Navrongo, in the Northern Territories, that cases are not infrequently seen.

143. It has not been considered necessary to institute preventive measures other than those briefly summarised in the two previous sections.

(*d*) *Dengue.*

144. Classical dengue exists and is reported from time to time. Sometimes it takes the form of localised outbreaks in schools and institutions. During the year under review no such outbreak was recorded. During the last few years the opinion has been growing that there is a dengue-like fever probably transmitted by biting flies of the genus *Culicoides* This surmise is considered probably to be correct.

145. From recent observations it appears likely that tropical typhus will also have to be differentiated from the category of dengue-like fevers. Whether the local typhus is flea-tick, or mite-borne is not known. Nine non-fatal cases were reported during the year.

146. An inquiry into the dengue-like fevers and pyrexias of unknown origin of the Gold Coast would probably yield extremely interesting results.

(*e*) *Trypanosomiasis.*

	1937.	1938.
Number of deaths registered	175	157
Percentage to total deaths registered	2·1	2·1
Rate per 100,000 persons living	52	46

147. The above figures, drawn from 35 registration areas with a total population of under one-tenth of the total population of the Gold Coast, cannot be taken as representing the true picture. The registration areas are chiefly urban in character, and the statistics obtained from such with respect to this disease do not yield figures of very great value.

148. The problem will not be discussed at any length in this section of the report, for the survey and preventive measures at present being undertaken in the Northern Territories are in the hands of special officers under the Research Branch of the Department.

149. The disease, however, is no new one, and in several stations over a long period of years the Health Branch has maintained clearings of a defensive nature.

150. It is known that some two per centum of the stream of labour moving south is infected ; and when it is recalled that the total influx of such labour has to be numbered in tens of thousands, it becomes obvious that nemurous foci of infection must take up their temporary abode in fly-infested areas in Ashanti and the Colony. There is, however, no present indication that the virulence of the infection is increasing.

(ii) Epidemic Diseases.

(*a*) *Plague.*

151. No case of plague was reported during the year. In the ports and the larger centres, 121,362 rats were caught and destroyed ; of these, a representative proportion was submitted to bacteriological examination. None were found to be plague positive.

152. It is now some fourteen years since the Gold Coast experienced the last outbreak of plague ; but the threat still exists. In the older ports the ships lie far out beyond the influence of the surf, and the danger is somewhat minimised ; but the rat-proofing of the buildings, storehouses, etc., in the vicinity of these older ports leaves much to be desired, and—particularly in Accra—there are congested slum areas quite near the port.

153. Buildings not originally designed with the consideration of rat-proofing in view often present, particularly when they get old, a formidable and expensive problem.

154. A reserve stock of plague vaccine is always kept in hand in case of any emergency, and to tide over the period until the Research Institute is in a position to turn out locally made vaccine in quantity.

(*b*) *Cholera.*

155. No case of cholera was reported during the year.

(*c*) *Smallpox.*

156. Cases to a total of 123 with nine deaths were recorded during the year. The area chiefly affected was the Western Province in the vicinity of the Ivory Coast frontier. The infection extended eastward at one point as far as the town of Dunkwa ; but for the most part the cases were scattered over a wide area in rural districts. A small outbreak occurred at Anamabu in the Saltpond district of the Central Province ; and a few sporadic cases came to light in the Southern Section of the Mandated Area of Togoland and the Keta district of the Eastern Province.

157. At no time did the outbreaks tend to assume epidemic proportions. It would be difficult to envisage any such occurrence in view of the well-vaccinated condition of the people generally.

158. During the year, lanolinated lymph supplied by the Lister Institute was used. A trial was also carried out with lymph made in Nigeria and supplied by the Medical Department. The trial is still continuing ; and if this local West African lymph proves satisfactory, as it promises to do, considerable future saving may well result.

159. The results of the year's vaccinations are as shown in the following table.

TABLE XV.

	1937.	1938.
Total persons vaccinated	343,193	364,791
Number verified successful	114,087	93,888
Percentage successful, i.e. of those seen again	88·88	90·72

160. Twelve regular Vaccinators are employed by the Health Branch. These officers are usually stationed at ports and ferries and other important areas such as the points of entrance of immigrants. All officers of the Health Branch staff are also trained vaccinators, and carry out the duties of public vaccinators in their areas when occasion arises.

(*d*) *Enteric fever.*

161. Some 16 deaths, due to fevers of the enteric group, were registered during the year; as compared with a total of 29 in 1937, which was an exceptionally dry year. This total yields a rate of 4·7 per 100,000 persons living, compared with a rate of 8·7 for 1937.

162. As was to be expected, most of the cases were recorded in the larger centres where laboratory facilities are available.

163. The rate recorded for 1938 is not a high one; but it is anticipated that there will be a steady annual increase in the number of cases due to diseases of this group, particularly in the larger centres.

164. In the more important towns, notably in Accra, the latrine service in the crowded central areas cannot be considered satisfactory. Sanitary sites are cramped and are often too close to dwellings. The latrines are over-worked, and the drums are almost always overfull. Yearly, the demand for a water-carriage sewer-borne conservancy system becomes more insistent.

165. The street gutters also carry much that is excretal in origin; and yield every possibility of infection, either air-borne as a result of partial drying and flaking-off, or as a result of contamination of the hands and feet particularly of children who love to play in gutters.

166. The attention of all Europeans is constantly directed to the necessity for becoming protected by vaccination against diseases of this group through the medium of Medical Notices published regularly in the *Gazette.*

167. Vaccination when in Europe is advised, but arrangements can be made at any time with the District Medical Officer for this important protective measure.

(*e*) *Dysentery.*

	1937.	1938.
Number of deaths registered	824	709
Percentage of total deaths registered ...	9.8	9.4
Rate per 100,000 persons living	247	208

168. Diseases of the group " dysentery, diarrhoea and enteritis," which for many years past had occupied the third position in importance in the list of " killing " disease, during 1937 (an exceptionally dry year) moved up to a position second only to diseases of the " pneumonia, broncho-pneumonia and bronchitis " category. During 1938, this disease group moved down to the third place being surpassed by pulmonary tuberculosis which advanced to its usual position, i.e. second only to the non-tuberculous diseases of the respiratory system.

169. Among diseases of the dysentery group, the amœbic, as a rule, accounts for twice as many cases as the bacillary type. This consideration indicates the fly factor as being of primary importance in the transmission of diseases of this group. As a result, the largest number of cases are reported from backward rural districts where the provision of latrine accommodation is non-existent or insufficient, where refuse disposal is unorganised and where the water supplies are polluted and often insufficient in quantity.

170. Not infrequently localised epidemics occur in villages in such backward areas, particularly towards the end of the dry season; the children often being the greatest sufferers.

171 Preventive measures can be summarised briefly, as follows—the provision of a sufficient number of pit-latrines of a sanitary type; the protection of water supplies against gross pollution; and the cleanly disposal of putrescible organic refuse.

172. The question of the provision of latrines is becoming increasingly urgent.

173. Save through a long process of persuasion, no other means exists of obtaining and maintaining a sanitary latrine service.

174. In the absence of a properly constituted rural health organisation it is impossible to insist that they shall be provided.

175. Lethargy and apathy carry the day and large rural areas in the Colony have no latrines of any sort.

(*f*) *Cerebro-spinal meningitis.*

176. The possibility of serious outbreaks of this disease caused much anxiety but fortunately there was no extension into the Gold Coast of the severe outbreaks which occurred in Northern Nigeria and in French territory to the north of the Gold Coast. Seven deaths only were registered during the year. The cases were of a sporadic nature, and there was no tendency towards epidemic spreads.

177. As a precautionary measure, Bawku and Zuarungu in the Northern Territories were declared infected for short periods.

178. Of the total number of deaths all occurred in the Northern Territories. One non-fatal case was recorded from Keta in the Eastern Province of the Colony.

179. The principal methods of prevention resolve themselves into general improvements in the housing of the people, the introduction of freer ventilation and the establishment of layouts.

(*g*) *Relapsing fever.*

180. No cases were recorded during the year under review. The freedom of the Gold Coast from relapsing fever over, now, a period of years is difficult to explain.

181. Systematic delousing is carried out at Tamale and Kumasi, both places situated on the main route of immigration into the Gold Coast. At the Kumasi delousing station 15,168 immigrants were disinfested during the year; compared with a total of 22,378 in 1937. The methods adopted are primitive but effective, and of late years Kumasi has been free from outbreaks which formerly were of annual occurrence.

182. There are, however, so many other routes proceeding south that, although a good deal is being done, it is difficult to believe that the precautions taken can account for the present freedom of the Gold Coast from the disease.

(*h*) *Yaws.*

183. Yaws during recent years has shown a distinct and steady decline. In 1929–30 some 24 per centum of all cases treated in the various welfare centres were yaws cases. In 1937 the percentage had fallen to 11, and in 1938 to 9·5 per centum.

184. Florid yaws is now rarely seen in the larger centres, and is much less common than formerly in the surrounding rural areas. In the removed and backward rural districts, however, yaws is very rife, and in many areas is still looked upon as a disease inevitable to childhood.

185. In these areas parents sometimes still refrain from bringing their children for treatment until the secondary rash is " well out ", or nearly general in distribution.

186. Of all diseases, yaws seems to be dependent for its incidence on a low standard in every factor constituting general environmental sanitation. It is a disease *par excellence* of primitive African village life.

(*i*) *Diphtheria.*

187. Three fatal cases of diphtheria were registered during the twelve months. Diphtheria is not very frequently notified, but is considered to be commoner than is generally supposed. Cases are usually reported from stations where laboratory facilities exist.

(iii)—OTHER DISEASES.

(*a*) *Leprosy.*

188. Settlements accommodating 390 lepers are situated at Ho, Kumasi, Accra, Yendi and Sekondi.

189. The most important settlement is that at Ho which has 236 inmates.

190. In Accra, Kumasi and Sekondi the lepers are housed in portions of the local Contagious Diseases Hospitals ; a not wholly satisfactory arrangement.

191. In Accra, where 78 lepers are maintained, it is hoped in the near future that a new settlement will be built on a site much more favourable for farming and poultry raising. The question of the rehousing of the Accra lepers is now somewhat urgent as the huts occupied by them in the old Contagious Diseases Hospital are rapidly becoming dilapidated beyond repair.

192. Owing to staff shortage, our knowledge as to the incidence of leprosy in the various localities, and generally, has not been materially increased during recent years. The incidence progressively increases as one proceeds north. Calculations based on the generally held supposition that there are about two lepers per mile of population shew the total number of lepers in the Gold Coast to be between 7,000 and 8,000. This estimate, it is considered, is on the low side.

193. Of the lepers seeking admission to one or other of the settlements, most are those who have become a burden on their relations and friends. Others are removed as homeless wanderers from the streets.

194. For those lepers, discovered during routine house-to-house inspections, who are unwilling to enter a settlement, nothing much can be done except to advice them to seek treatment as out-patients. Some follow this advice ; the majority do not.

195. In all cases where lepers are accommodated in ordinary living houses, the house-owner is advised how best to avoid spread of the infection to others. Sometimes this advice is well carried out. As a general rule the people exhibit little fear of infection, and it is chiefly when the infected become helpless and a burden that an effort is made to obtain accommodation for them elsewhere.

(*b*) *Tuberculosis.*

	1937.	1938.
Number of deaths registered ...	846	825
Percentage to total deaths registered	10·03	11·0
Rate per 100,000 persons living ...	254	242

196. Tuberculosis, the pulmonary variety of which constitutes over 80 per centum of the total cases seen and to which comments will be confined, is considered to be possibly the most important health problem for the future.

197. Pulmonary tuberculosis is no new disease to the Gold Coast ; and it may be that a considerable degree of tuberculisation has taken place and is at present taking place, among the inhabitants of the older, more populous centres.

198. The powers of resistance to infection are generally very low.

199. No less than 385 or 50·5 per centum of deaths occurred among males in the 25–45 years age-group. The cause of this high incidence is capable of ready explanation. The male 25–45 years age-group includes practically the whole of the immigrant labourer class.

200. On this class fall, in a marked degree, the effects of exposure, overstrain, overcrowding in congested dwellings, of concurrent diseases, e.g. malaria, helminthiasis, etc., of undernourishment and of diet-deficiency. Unemployment is also an important factor.

201. The immigrant labourer knows little or nothing of the laws of health and self-preservation ; and the spitting habit is universal. All these factors play their part with deadly effect.

202. The mortality-rates returned from the various centres vary within wide limits. In Accra, the percentage of male deaths from pulmonary tuberculosis to male deaths from all causes was 8·4 ; in Tarkwa, it was 22·1. The female rates for these two centres was 1·5 and 2·5 respectively.

203. The part played by the deep mining industry is difficult to assess. For the financial year 1937–38, the mines with whole-time medical officers returned a rate of 23·6 per centum to total deaths from all causes excluding accidents. For many reasons these figures cannot be considered representative. The mine

labourer is not compounded, and is not subjected to periodic medical examination. Again, on leaving his work on a mine he ceases to be considered a " mine labourer ", for statistical purposes, after the expiration of a period of three months.

204. The labourers know the disease well ; and, usually, on becoming aware of their condition they leave their work (often without being seen by the Medical Officer of the mine) and after a sojourn of varying length in a nearby rural village, set out for home. Some reach home, others fall out by the way. Whatever happens, the opportunities for spreading infection are many.

205. The factor of silicosis also requires clarification. The condition is known to exist, but it is believed that the infection element in the condition is generally so rapid that it tends to obliterate the silicotic lesions at an early date. Staff shortage and unavoidable changes have necessitated the postponement of the proposed inquiry into silico-tuberculosis in the area affected by the deep mining industry, but it is hoped to proceed with the inquiry in the very near future.

206. Owing to the promotion to another Colony of the experienced Health Officer selected to take part in this inquiry in collaboration with a Medical Officer trained in radiology who is already stationed in Tarkwa, it has been considered necessary to recommend the direct appointment of an officer with specialist training. This appointment has not yet been made.

207. The question of tuberculosis in its relationship to the deep mining industry is further discussed in a special report on the mines areas contained in the Appendices.

208. Whether tuberculosis is generally on the increase is difficult to say. So far definite statistical evidence is not forthcoming.

209. It is believed however that it is increasing in the more rural areas where death registration is not yet practicable.

210. Tuberculosis is peculiar in that, in order to counteract its effects, a general steady elevation of every factor constituting environmental sanitation will be required.

211. The principal means of prevention can be summarised briefly, as follows: the removal of congested slum areas and the improvement of housing standards generally, the general adoption of a better balanced dietary, the extension of layouts in township and rural areas, and the education in the broadest sense of people of all ages and classes. A national campaign against the universal spitting habit is long overdue ; and an attempt has recently been made to inaugurate such a movement through the teachers of the schools of the Gold Coast.

(c) *Pneumonia.*

	1937.	1938.
Number of deaths registered	1,394	1,117
Percentage to total deaths registered ...	16·53	14·83
Rate per 100,000 persons living	418	328

212. The diseases of the " pneumonia, broncho-penumonia, bronchitis " group annually account for the greatest number of deaths.

213. Again the male 25–45 years age group suffers most ; but a fairly high incidence is also reflected in the very young. In the young the malarial and helminthic factors play a not unimportant part.

214. Apart from the high mortality resulting from pneumonia, the disease may kill with such dramatic swiftness—often in the early pre-consolidation septicaemic stage—and the post-mortem appearances may be so similar that very frequently full histological and bacteriological inquiries are necessary before yellow fever, or plague, can be excluded.

215. The causes and the means of prevention are identical with those enumerated in the preceding section.

(iv) HELMINTHIC DISEASES.

(a) *Ankylostomiasis.*

216. In 1938 only 38 deaths were registered as due to this infestation. This total is not impressive, but it is considered that ankylostomiasis plays an important part in economic conditions in the Gold Coast. Infestation is common ; but a clinical picture is often wanting even when the degree of infestation is moderately

heavy. Ankylostomiasis is commonest where natural conditions are not favourable for the digging of sanitary pit-latrines, e.g. where the soil is chiefly composed of sand; and in those rural areas where apathy and lethargy refuse to take action towards the provision of latrines. In the latter instance, possibly, cause and effect are inextricably bound up the one with the other.

217. As the result of a local investigation, the Medical Officer, Ho, Togoland, early in 1938 reported that in a series of examinations infestation was proved in some 500 unselected cases (without recourse being made to concentration methods) to the extent of 40 per centum. In the Southern Mamprusi District of the Northern Territories the infestation appears to be almost universal.

218. Methods of prevention can be summarised, briefly as follows: the provision of as sanitary a latrine system as possible, and the cleanly final disposal of night-soil where removal pan-latrines are in use.

219. Over large areas particularly in the Colony, where apathy is the general rule, vast rural areas have no latrines, and no compulsion is possible.

220. The surroundings of villages in such areas are often, literally, saturated with excreta.

221. Annually, expenditure with a view to the treatment of diseases grows; and yet such conditions in the rural areas perpetuate a degrading nuisance which is possibly as responsible for the general low standard of physical well-being as any other factor with the possible exception of the malaria factor.

222. Expensive welfare centres have been established; children pour into them from the rural districts for advice and treatment only to return to the degrading squalor of their home surroundings.

223. If all villages could be influenced to provide simple sanitary pit-latrines, the general good resulting would be incalculable. Only a modicum of interest and organisation is required. In most instances, these factors cannot be obtained.

(*b*) *Ascariasis.*

224. This infestation is almost universal. Children are affected as soon as they are able to creep about. The malign influence of this infestation on the very young is hard to exaggerate.

225. When coupled with the effects of malaria and faulty feeding there is little wonder that so many die in childhood.

226. The effects of ascariasis are stressed from all welfare centres and from most districts.

(*c*) *Taeniasis.*

227. The highest incidence of this infestation, which is a common one, is to be found in those areas where latrines are not provided, and where the proper cooking of meat is not possible owing to the necessity for conserving the fire-wood supplies. In the north these considerations commonly exist.

228. The chief methods of prevention are the provision of an adequate number of sanitary latrines, the careful final disposal of night-soil where the removal pan-system is in vogue, the prevention of garbage mongering on the part of live-stock, the provision of adequate slaughtering facilities and the systematic inspection of all meat before sale. The above desiderata, it will be appreciated, can only be obtained in a comparatively few centres.

(*d*) *Dracontiasis.*

229. This infestation, save in those centres provided with a pipe-borne water supply, and in the smaller towns and villages where the water supply is sufficient and protected from gross pollution, is a very common one.

230. In certain areas, particularly in the Northern Territories, infestation is so common as to be almost universal. In the areas where it is rife it is a potent cause of labour inefficiency. The incidence reaches its maximum in those localities where an annual water famine is experienced in the dry season. In such areas every available drop of water is made use of, being scooped out of water-holes, residual pools in former swamps and drying river beds.

To facilitate the scooping process small excavations are often made, to reach which wading is frequently necessary. Not infrequently, villages situated where there is an annual shortage of water suffer heavily. In such, the people are usually restricted for a supply to a single swampy pool, and frequently associate the outbreak with the arrival of an infested stranger some time previously.

231. The people apparently often recognise the long latent period between infestation and the appearance of the worm on the surface of the body and are usually well acquainted with the relationship between the infestation and the drinking water supply.

232. Preventive measures entirely depend on the provision of a well-protected water supply—the best available. Unfortunately, there is often very little choice.

(*e*) *Schistosomiasis.*

233. Schistosomiasis, although not so common as the preceding infestations is far from being rare, and is much commoner than is often supposed.

234. A sufferer only infrequently seeks aid as a direct result of the infestation, which is often only discovered on routine examination. It is often confused with gonorrhoea, an ailment which is common. The condition is only stressed from a comparatively few stations, i.e. Winneba, Ada, Akuse, Oda, Bawku and Navrongo.

235. Preventive measures adopted are—the drainage of the collections of water inhabited by the snail hosts where possible (this consideration is often impracticable owing to the extent of the swamp land involved), the careful disposal of excreta, and the treatment of the sufferers.

Animal Diseases.

236. The widespread outbreak of canine rabies reported over the last three years showed further abatement during the period under review.

237. From time to time however sporadic canine cases were reported. The last two so reported occurred just before the end of the year in the Accra Residential Area.

238. Preventive measures remain in full force, and the whole of the Gold Coast is still a declared "infected area".

239. Two fatal human cases were recorded during the year. Of these cases one occurred in Accra, and one in Cape Coast.

240. Dog owners, although more helpful in reporting cases of sickness, are still often very remiss in complying with tieing-up and "on the lead" orders, and in ensuring that their dogs are periodically protected by inoculation.

241. A plentiful supply of canine vaccine, made at the headquarters of the Department of Animal Health at Pong-Tamale, was available throughout the year.

242. An adequate supply of vaccine for humans is always available, and many persons have undergone prophylactic inoculation during the year.

243. The campaign against unlicensed and diseased dogs goes on as before in the larger centres ; but the scores of dogs destroyed monthly are nearly as steadily made good by the influx of pariahs from the surrounding rural areas. It is difficult at times to realise where these dogs continue to come from, but the pariah is ubiquitous and prolific and his number legion. It is safe to say, however, that the number of masterless dogs to be seen in the controlled centres has very appreciably diminished.

244. In the larger towns where the licensing of dogs is in vogue, a certificate of protection by inoculation is required before a licence is granted.

245. In those centres where no officer of the Animal Health Department is stationed, the control of slaughtering and meat inspection is carried out by Health Department officers.

In the following table the results of these inspections in Kumasi are given. Kumasi is the chief distributing centre for Ashanti and the Colony, and these results give a fair impression of the usual pathological conditions found.

TABLE XVI.

SLAUGHTER-HOUSE—KUMASI.

Condemnation of Meat.

(1938).

DISEASE.	CATTLE.		SHEEP.		GOATS.		PIGS.		Total number condemned.	
	Whole.	Parts.	Whole.	Parts.	Whole.	Parts.	Whole.	Parts.	Whole.	Parts.
Cysticercus bovis	19	35	—	—	—	—	—	—	19	35
Cysticercus cellulosae ...	—	—	—	—	—	—	3	—	3	—
Dropsy and emaciation ...	7	—	81	—	60	—	—	—	148	—
Septicaemia	4	—	32	—	36	—	—	—	72	—
Jaundice	11	—	70	—	55	—	—	—	136	—
Pseudo-tuberculosis ...	—	—	33	136	36	155	—	—	69	291
Pneumonia	7	370	38	429	57	484	—	78	102	1,361
Contagious pleuro-pneumonia	6	—	—	—	—	—	—	—	6	—
Pleurisy	9	146	70	198	66	279	4	32	149	655
Liver fluke	—	492	—	646	—	804	—	—	—	1,942
Cirrhosis of liver	—	201	—	296	—	370	—	45	—	912
Miliary abscesses	—	55	—	195	—	215	—	27	—	492
Fatty infiltration	—	29	—	17	—	11	—	—	—	57
Swine fever	—	—	—	—	—	—	3	—	3	—
Bruises and injuries ...	2	59	55	144	46	155	—	17	103	375
Nephritis	—	326	—	326	—	284	—	56	—	992
	65	1,713	379	2,387	356	2,757	10	255	810	7,112

246. Two fatal human cases of anthrax were registered during the year.

Seasonal Prevalence of Diseases.

247. The seasonal prevalence of diseases is not very marked in the Gold Coast.

248. Yellow fever may make its appearance at any time, but it is usually commonest when the rains are beginning or ending. Some outbreaks occur at the height of the dry season in comparatively waterless areas owing to the domestic storage of all the water available. Such stored water is, as a rule, unprotected against mosquitoes.

249. Diseases of the "pneumonia, broncho-pneumonia, bronchitis" group are commonest during the harmattan months (December, January and February), when the cold nights encourage crowding together and lead to the closure of what ventilating openings there may happen to be.

250. During this period of the year also relapsing fever, epidemic cerebro-spinal meningitis and smallpox are liable to appear.

251. Inflammatory conditions of the conjunctiva are not uncommon, and sometimes in certain localities may assume almost epidemic proportions.

252. In certain areas during the dry season, the effects of an ill-balanced dietary are exaggerated and xerophthalmia makes its appearance.

253. Malaria has no marked preference for any particular period; and since many of the severest cases occur in the dry season when the nights tend to be cold, the factor of chill is apparently of considerable importance.

(II) GENERAL MEASURES OF SANITATION.

(*a*) *Sewage Disposal.*

254. Little alteration in previously existing methods for the disposal of night-soil can be reported during the period under review.

255. The provision of septic tank latrines was extended in several centres, and, when carefully sited and not over worked, these gave good service. In some large centres, however, where septic latrines had been provided in the past in insufficient numbers for busy thickly populated areas, over-loading and resulting nuisance

occurred. The motor pump-wagon provided in Accra for the periodic emptying of such latrines has proved of great service. In certain centres there is a growing inclination towards an increase in the number of septic tank latrines by the conversion of the existing pan latrines to the septic type.

256. The simple septic tank latrine devised for the Northern Territories has proved very satisfactory, and there is a considerable increase in the number of such latrines in various areas. In this type of latrine withdrawal openings facilitate the removal of digested night-soil for composting with organic household refuse, and where such refuse is not available in sufficient quantity cut grass is utilised for the purpose.

257. Composting is now proceeding systematically at Tamale ; and much useful knowledge has been and is being gained. The possibilities of this system viewed from the standpoint of those who wish to increase the productivity of farm-land are very promising ; but the dangers of fly-borne and helminthic diseases are patent, and it is considered that progress should be steady rather than hurried, for any tendency to degeneration into a " privy-midden " system cannot be contemplated with equanimity.

258. In the Residential Areas there has been a general increase, in bungalows owned by commercial firms, of water flush, septic tank systems of night-soil disposal. These, in the large majority of instances, have worked well. Caution, however, is required in those localities where it is difficult to obtain proper downward percolation of the effluent.

259. No advance has yet been possible with respect to such installations in connection with Government bungalows. It is hoped in the future when the most pressing outstanding sanitary works have been completed, to draw up programmes for the larger and more important Residential Areas. The existing removal-pan system is very primitive, and the further handling of the pan contents is very apt to cause unpleasantness.

260. The central congested areas of certain of the larger centres cannot be considered as being adequately served with public latrine accommodation. This applies particularly to Accra where sanitary sites are few and often badly situated ; and where fresh sites are very difficult to obtain. The pans in the public latrines, in spite of frequent emptying, are usually overfull and the nuisance is considerable. In such areas water-flush sewer-borne methods are rapidly becoming imperative.

261. As previously explained in this report, it is becoming more and more difficult to obtain adequate latrine accommodation in the rural areas, and the danger of the excreta saturated surroundings of the insanitary village has already been stressed.

262. In the mines areas the disposal of night-soil by incineration is finding increasing favour. The method is a cleanly one, and if sufficient combustible medium, e.g. sawdust, is forthcoming locally the results are very satisfactory.

(*b*) *Refuse Disposal.*

263. In the larger centres all combustible refuse is disposed of by incineration. Household refuse deposited in roadside bins is removed by motor lorry transport to the ncinerating area.

264. The roadside collecting bins, owing to carelessness on the part of the public, are as a rule a nuisance of the first order. In Kumasi where no such bins exist and the people carry the refuse directly to the incinerators, the general impression of cleanliness as compared to other centres is indeed striking.

265. Incineration is carried out in various contrivances, from the forced-draught destructor in Accra through a gradation of concrete or brick-built incinerators of the bee-hive variety down to simple mud-built incinerators of field pattern, which may be fitted with beds composed of iron bars or may be of the barless type.

266. Indestructible refuse such as tins, bottles, old motor parts, etc., are disposed of by being packed into old quarries, borrow pits or low-lying ground, and covered with a thick layer of earth or incinerator ash.

267. In the larger centres, the stray bottle is not now the problem it was owing to the marketable value which has achieved as a result of the establishment of numerous local mineral water factories and of the Accra Brewery.

268. In the smaller rural villages recourse has to be had to controlled dumping. This is usually very badly carried out and, as a result, too often the overgrown perimeters of these villages become filled with potentially water-containing debris which readily becomes an extensive " mosquito nursery " and increases the yellow fever menace on the trade routes.

(*c*) *Drainage.*

269. The work on the Korle Lagoon reclamation scheme made steady but very slow progress throughout the year. The provision of Decauville trucks and line has somewhat accelerated the pace of filling, but generally the concrete retaining-wall construction has outstripped the slower earth filling activities.

270. The permanent concrete outlet to the sea at the Butuah Lagoon, Takoradi was extended further seawards with good results during the year, in order to obviate, the filling of the opening with sand at each high tide.

271. Extensions to the existing concrete drainage systems of various centres were undertaken during the year as briefly indicated in paragraph 6.

272. One of the most irritating sources of mosquito breeding is the water invariably to be found at the bottom and in the branches of crab-burrows. In lagoon areas, the number of such burrows is legion. So far no effective method of dealing with this nuisance has been found. Experiments are however proceeding at Takoradi. Casts have been made of representative crab tunnels, and it is intended to use a cyanide powder introduced into the tunnels by means of a rotary blower. The common crab-hole mosquito, *Aedes irritans*, although not implicated yet as a carrier of disease, can be a pest, as at Takoradi where low-lying, crab-haunted land approximates to the Residential Area.

273. All centres report improvements and extensions to the existing systems of earth drains. Such systems are, however, very wasteful of labour, and an economic limit is very soon reached.

274. The question of the numerous lagoons in the Sekondi–Takoradi area was considered during the year. It is considered that Takoradi will extend east, and Sekondi will expand towards the west in the future, and that the two towns will tend to coalesce. At present Sekondi is becoming congested, and to rectify this extension room must be found. The whole district in question is complicated by lagoons, and it is hoped next year that funds will be made available for a preliminary survey of the area involved.

275. During 1938, out of a total of 378 admissions to the European Hospital, Takoradi, no fewer than 341 were found to be suffering from malaria, concurrent or otherwise. All the admissions, of course, were not from the immediate Takoradi-Sekondi area ; but, even so, there is ample evidence to indicate that extensive lagoon reclamation schemes will have to be undertaken in the near future in the Sekondi–Takoradi locality.

(*d*) *Water Supplies.*

276. The pipe-borne water supplies at Accra, Kumasi, Cape Coast, Sekondi-Takoradi, Winneba and Koforidua, which are operated by the Public Works Department, continued to function very successfully throughout the year.

277. Work proceeded steadily on the project to increase the available water supply to Accra from 1,000,000 to 2,000,000 gallons per diem. This increased output will have an important reaction on the public health of the town.

278. The Cape Coast water supply was extended to the coastal towns of Elmina and Saltpond, and to the towns and larger villages *en route*. This extension is a public health measure of the first importance for not only will it yield an excellent water supply to a large head of population, but it should, by obviating the necessity for storing water in the houses, do much to diminish the breeding of domestic mosquitoes in the area supplied.

279. The Water Supply Section of the Geological Survey continued the inquiry into the possibilities of providing water in the various districts of the Northern Territories, but no record of the results achieved during the year are yet to hand.

280. In many areas in the Northern Territories periodic water famine exists during the dry season, and the provision of an adequate supply of water for these will mean a revolutionary improvement in the well-being of a thrifty and industrious population.

281. Early in the year, an extensive survey of the available water supplies in the Shai, Akwapim and Krobo districts of the Eastern Province was carried out, i.e. in the areas which suffered so severely during the outbreak of yellow fever during 1937.

282. The subsequent report confirmed what had been anticipated, i.e. that the large majority of the towns and villages in these areas had deficient natural supplies and that conditions approaching a water famine are the rule in the dry season.

283. Suggestions for the water supply of the areas in question have been formulated by the Director of Public Works and the matter is under the consideration of Government.

284. All pipe-borne water supplies are subjected to periodic bacteriological examination. The results of these examinations with respect to the Accra and Sekondi-Takoradi supplies are, as follows :—

> *Accra :* In 162 samples taken from the final filters and points of distribution, typical *Bacillus coli* was only detected in 100 cubic centimetres on two occasions, once in connection with one of the final filters, and once in association with an individual house supply due to entirely local conditions. These considerations indicate a very high standard of purity.
>
> *Sekondi-Takoradi :* In Sekondi regular samples were taken, and in no instance was *Bacillus coli* found in 100 cubic centimetres. The same high standard was obtained at Takoradi in the town area. In the harbour area, the samples yielded at times very irregular results and the matter is at present under investigation. The reservoir supplying the harbour area appears possibly to be at fault and to require increased protection against the possibilities of pollution.

(*e*) *Clearance of Bush and Undergrowth.*

285. Little can be added to the comments of previous years. It is not possible to ensure that the perimeters of the larger centres and residential areas are kept in the condition they should be. This measure is one of the greatest importance, for any growth in proximity to dwellings simply serves as cover for refuse of all sorts including potentially water-retaining, indestructible articles. Well-cleared surroundings, also, do much to diminish the prevalence of insects including mosquitoes.

286. On the areas that cannot be kept cleared controlled farming on the part of the local inhabitants is permitted. This economic measure is not a great success, as plot-holders frequently permit their crops to become overgrown with weeds and the land under cultivation readily becomes exhausted and nobody can be found willing to work it.

287. In Koforidua a new system of controlled farming has been devised which promises well ; but, as pointed out locally, the scheme has not been running long enough to enable a definite opinion to be expressed. The experimental area comprises some 40 acres divided into allotments. Three of these allotments are maintained by the Health Branch ; and from these seeds, etc., are issued to the allotment holders. Control by these means is very complete.

288. Clearings made with tsetse control in view are discussed elsewhere in this report.

(*f*) *Domiciliary Visiting and Inspections.*

289. With the control of yellow fever in view, domiciliary visiting and inspections are key measures. All members of the Health Branch staff take part in this work and it is mainly through this medium that contact is maintained with the general public on all phases of protection from disease.

290. The desideratum aimed at is the thorough inspection of all premises every seven to ten days. Naturally, this standard cannot be attained save in the largest centres, the ports and some of the more important smaller towns and larger villages on the main trade routes.

291. Details of the results of these inspections in six centres are shown in the following table :—

TABLE XVII.

Town.	Convictions for mosquito larvae.	Fines for larvae.	Convictions for insanitary conditions.	Fines for insanitary Conditions.
		£ s. d.		£ s. d.
Accra	461	210 11 0	2,348	482 7 0
Koforidua	327	91 18 6	1,386	224 12 6
Cape Coast	184	61 12 0	658	126 0 6
Sekondi	55	21 12 6	640	122 9 0
Kumasi	216	108 14 6	2,740	700 11 6
Tamale	860	96 5 0	1,586	123 11 5
Total	2,103	590 13 6	9,358	1,779 11 11

292. For the Gold Coast as a whole, fines for mosquito larvae amounted to a total of £1,939 3*s*. 6*d*. in 8,438 convictions ; and to a total of £5,012 14*s*. 5*d*. in 28,575 convictions for insanitary conditions.

293. Annually, more and more importance is attached to educative measures during inspections, and the higher educated and more intelligent class of inspector now entering the Service makes it easier to stress the factor of education.

294. Lethargy, apathy and hostility amounting not infrequently to open obstruction have, however, to be met and dealt with.

295. The health visiting activities of the staffs of the various Welfare Centres play an increasingly important part in the protection of child life. These activities will be dealt with at greater length later in the report.

(*g*) *Offensive Trades.*

296. Offensive trades are not yet a very important factor in the Gold Coast.

297. Fish-curing, when uncontrolled and carried out in almost every compound in a large district of a town, can be a decided nuisance. Fish-curing is chiefly confined to the coastal towns ; and an effort is made to confine such activities to certain areas where the nuisance is not so insistent.

298. In certain centres also hide-curing and dyeing necessitate a certain measure of control.

(III) SCHOOL HYGIENE.

299. During recent years contact between the officers of the Health Branch and the school child has not been as close as could be desired. This failure is due chiefly to the former curtailment of staff.

300. The local Medical Officers of Health, however, keep in as close touch as possible with the schools in their district. In Accra, the Health Visitors frequently visit the infant schools ; and during the year 1,544 children were examined, and 275 were referred for treatment.

301. School premises, generally, are of a fair sanitary standard, but defects in ventilation, lighting, available space per pupil and latrine accommodation are not infrequently seen.

302. Many of the unassisted schools however are distinctly bad ; and a large degree of overcrowding is frequently seen. Many of these schools have very high sounding names, and are housed in totally inadequate and unsuitable quarters. When they attract attention, they sometimes show an extraordinary degree of mobility and can move rapidly from one district of a town to another.

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303. The spleen indices returned from some of the important centres are shown in paragraph 15.

304. A certain amount of discussion has recently taken place with respect to the nutrition of the school child and the question of free meals. It was decided that there was no immediate necessity for free meals as there is little sign of any general malnutrition ; but it has to be recognised that the dietary of the school child is usually ill-balanced and that this consideration varies in different districts of the Gold Coast. The element of disease, e.g. malaria and helminthiasis, is also recognised as being of importance and it was therefore decided that the wisest course would be to detail an officer for a special inquiry into the health and nutrition of the school child, and to review the matter later in the light of his report. The work on this important survey has commenced.

(IV) LABOUR CONDITIONS.

305. Labour in the Gold Coast can be divided roughly into two main arbitrary groups—organised and unorganised.

306. The organised class includes the labour employed by Government, by the mining companies, and by contractors and lighterage companies.

307. Unorganised labour embraces those who seek employment in the cocoa farms and do odd portering jobs about lorry parks, markets, railway stations, etc. A section of this class arrives in too enfeebled a condition to work, and constitutes a serious public health problem.

308. Most of the labourers in the Gold Coast are immigrants. The total wave of immigration is not accurately known. The same applies to the return wave of emigration.

309. The number of immigrants entering the Gold Coast through the ports remains fairly constant year by year, and the numbers are so small as hardly to affect the general problem.

310. The influx of immigrants entering the Gold Coast over the land frontiers was, it is thought, well below the level of the last few years. Failure to obtain employment on the cocoa farms, and the effects of the cocoa hold-up in 1937, were apparently the principal causes for this decline.

311. During the year some 15,168 immigrants were deloused at Kumasi, on the main arterial route from the north, compared with a total of 22,378 for 1937. This route, however, is only one of several converging on Kumasi, and the number of immigrants dealt with can be considered only as a comparatively small section of the total wave.

312. On the whole it is considered that 1938 has generally been kinder to the casual labourer than was 1937. Conditions were stable and more labour was absorbed into employment. Wages are still on the low side ; and the cost of foodstuffs and room rents are disproportionately higher than the rate of wages. Wages are showing an upward tendency however and Government is reviewing the situation.

313. In 1938 some 28 deaths as a result of starvation were recorded. In 1937 the total was 50.

314. The Chief Inspector of Labour, it is understood, is contemplating the organisation of immigrant labour, i.e. the aiding and expediting of the journey south of the labour seeking employment on the mines ; the advising of would-be labourers as to where employment can best be sought, and the establishment on the main trade routes to the south of " refuges " at strategic points where the labour can obtain shelter and food.

315. Such an organisation will represent a very important public health measure. If the influx of labour over and above the possibilities for its absorption into employment could be obviated, and the enfeebled immigrant succoured and sent back whence he came, the result would be still better. These two considerations, however, are difficult to obtain, and it is thought that the down and out labourer temporarily too feeble to work will be an important factor in most of the larger centres for some years to come. To deal with such a problem it is essential that in all the strategic centres there should be " refuges " organised on the lines of the " Refuge " which has been in existence now in Kumasi for a number of years.

316. In such an institution, the starving immigrant too feeble to work can find shelter, food and rest until he is in a fit condition to continue his search for employment. It is somewhat strange, but these benefits are very rarely, if ever abused.

The immigrant, even before he is really physically fit, becomes restless and wishes to proceed on his way.

317. It is considered that later some provision will also require to be made for the fit labourer proceeding south, or on his return journey. This provision might take the form of a caravanserai where he can obtain shelter at other than exorbitant charges.

(V) HOUSING AND TOWN PLANNING.

318. During the period under review the question of slum clearance in the larger centres has attracted increasing attention. The problem of the congested, central Asere quarter of Accra has been reviewed and a committee has been appointed under the chairmanship of the Director of Public Works to review the question in the light of former reports and existing conditions, and to advise Government as to the best method of dealing with the problem.

319. The question of the central congested area of Sekondi has been reviewed ; and the Sekondi Town Council has undertaken the revision of the existing building regulations with a view to obtaining additional powers for dealing with the problem. During the year 66 buildings were in course of erection in Sekondi, and 23 were completed ; compared with 55 and 20, respectively, in 1937.

320. Areas suitable for an extension layout have also concerned the Sekondi Town Council, and funds it is hoped will be included in next years estimates to enable a comprehensive preliminary survey to be made over the area to the west of Sekondi on which future extension is likely to take place. This area is plentifully intersected by lagoons, and it is necessary to ascertain the amount of reclamation work that will be required before any extension to the west, i.e. in the direction of Takoradi, can be made.

321. A striking feature of 1938 has been the great building activity of commercial firms in the Accra Residential Area for the purpose of accommodating their European staffs outside the town. The outbreak of yellow fever in the town of Accra in 1937 has no doubt done much to accelerate the provision of these staff quarters in the Residential Area. It also indicates in a very definite manner the trust reposed in well-controlled Residential Areas by the commercial firms.

322. Throughout the year building activities in the African residential suburbs of Christiansborg and Adabraka in Accra showed increased activity. It is becoming apparent, however, that all is not well with building control in the town, and that guardianship of the best future interests of the place is lacking. The growing disregard for the Building Regulations makes for increasing uneasiness, and can eventually only lead to the bequeathment to a future generation of an insanitary legacy. If regulations are made, they should be implemented ; or standards will fall further, and Accra, finally, will fail to take its proper position among the other leading towns of the Gold Coast. Any disregard of existing building standards once permitted gathers momentum as time passes, and a check on the downward path is increasingly difficult to effect. During the year, 170 new buildings were completed as compared with 118 in 1937. Building permits to a total of 369 were passed, compared with 354 in 1937.

323. At present the Survey Department is carrying out a contoured survey of the town area of Cape Coast. This work, it is estimated, will take a couple of years to complete. Until finished little headway towards the formulation of town planning schemes can be made. During 1938 some 32 building permits were granted, and 62 buildings were repaired, or demolished after the service of notices. In 1937 the number of building permits granted was 42.

324. Steady progress, as usual, was also reported from Kumasi. The first meeting of the Town Planning Sub-Committee of the Kumasi Public Health Board, a new departure, was held on 11th May, 1938. Ninety-one building permits were passed in 1938 to a total building value of £62,543. In 1937 the total number of building permits granted was 153. The first part of the Dominasi clearance scheme was begun during the year, and the Board has included funds in estimates for 1939–40 for further slum clearance in the Zongo district. Since its institution the Kumasi Public Health Board has worked steadily on replacement and town-planning schemes. As a result Kumasi is to-day undoubtedly the finest town in the Gold Coast, and the efforts of the Board set a high example for other public bodies. Conditions in Kumasi, however, are more conducive to progress than elsewhere.

325. Unfortunately the building of good class private dwellings in suburban areas does little to relieve the older congested slums to be found in most of the larger centres in the Gold Coast. These slums will, it is thought, require Government assisted municipal schemes before they can be eradicated, and the sites on which they stand can be laid-out on modern sanitary lines.

(VI) SANITATION IN THE MINING AREAS.

326. This most important question is dealt with in a special report in the Appendices. It will therefore only be touched on briefly here.

327. Steady progress can be reported generally in the mining areas, i.e. those areas controlled by the mining companies. It will however be necessary for certain companies to draw up and accelerate building programmes for the satisfactory housing of the full number of their labourers. At present too many mine labourers have to find lodgings in insanitary private houses speculatively built in the vicinity of certain mining concerns. For accommodation in these exorbitantly high rents are often charged.

328. Progress in the mining health areas can also be reported. These areas are gradually being brought under control, but the usual legacy in the form of hovels rushed up before legal control could be obtained will take some considerable time to eradicate.

329. Two important advances have been made with respect to health legislation. Mining health areas can now be described rapidly on a zonal basis without waiting for the completion of a protracted survey. This amendment has been made somewhat late in the day, but should still be useful, for as soon as any process of mining starts a mining health area can be declared and the erection of hovels can be prevented.

330. A common mining health area has now been declared for the surroundings of Tarkwa. This area contains five mining areas ; and is some sixteen miles long by six miles wide. It is trusted that in the near future the Tarkwa Common Mining Health Area will be placed under the sanitary control of a representative and statutory Tarkwa Township Board.

(VII) RURAL SANITATION.

331. Great progress can be reported in the Northern Territories, under the aegis of the Native Administration, in all branches of rural sanitation. This steady advance is most encouraging, and the progress already made should act as a stimulus to the rest of the Gold Coast.

332. In Ashanti matters remain much as in recent years, and little advance can be recorded.

333. In the Colony apathy is the general rule, and no progress can be reported save in the few instances where Stool treasuries are on a sure footing.

334. It is stressed repeatedly that rural sanitation is not the expensive undertaking it is sometimes held to be. Maintained interest and effort are the chief factors. These are very difficult to obtain. All that is required is briefly, as follows :—

(*a*) Houses to be built with proper clearance in orderly lines on healthy sites.
(*b*) An appropriate number of sanitary pit-latrines to be dug and maintained.
(*c*) An adequate cleared zone to be kept round the villages.
(*d*) The water supply to be protected.
(*e*) Refuse dumps to be organised, and potentially water-retaining indestructible refuse to be disposed of by burial.
(*f*) All storage of water to take place in vessels adequately protected against the ingress of mosquitoes.
(*g*) All outbreaks of infectious diseases to be reported forthwith.

335. In the rural districts generally at present all that can be done is to institute mosquito control over those areas which have been placed under the provisions of the Mosquitoes Ordinance, and to encourage the people to take an interest in the many other factors bearing on their environmental sanitation. Response however is small.

(VIII) FOOD IN RELATION TO HEALTH AND DISEASE.

336. During the year one death due to beriberi, and seven due to pellagra were registered. No death as a result of scurvy was registered. It cannot be claimed therefore that diseases due to grave nutritional defects are very common.

337. The general dietary of the Gold Coast, however, tends to be poorly balanced, lacking protein, animal fat, fruits and fresh vegetables.

338. Children, particularly at the time of weaning, are very vulnerable. Ignorance is rife ; and, again, most people are not in a position to buy one of the various kinds of tinned or dried milks. No supply of local milk is generally available.

339. The Standing Committee for the Gold Coast on human nutrition, on which representatives of the Education, Animal Health, Agriculture and Medical Departments sit, functioned throughout the year. This committee meets periodically and considers all factors bearing on human nutrition in the Gold Coast, and advises Government on measures necessary to improve the diet of the people.

340. The Department of Animal Health has already achieved much in the improvement of the cattle, sheep, pigs, and poultry of the people ; and much is expected in the future from a scheme for mixed farming which is being put into operation by the Department of Agriculture.

341. As mentioned previously in this report, the nutrition of the school child has been recently under discussion and it has been decided that the school children of the Gold Coast, generally, are not badly nourished and that there is no immediate demand for the free distribution of meals. This problem, however, is to be the subject of a special investigation, and an officer of the Medical Department has been detailed to make a comprehensive preliminary survey of the subject.

(1) MARKETS.

342. The presence of a well-sited and popular market in any centre is a health measure the importance of which it is difficult to exaggerate in that it ensures a steady and cheap source of local foodstuffs.

343. Everything possible is done to keep the stall rents as low as possible while ensuring that they remain commensurate with a fair return on the original capital expenditure. There is always a tendency however for petty traders and hardware sellers to take up more than their share of room at the expense of the vendors of local food products.

344. During the year improvements were carried out in the markets at Cape Coast (Kotokurabah and Papratem), Accra, Koforidua, Asamankese (Native Authority), Nsawam and Adoagiri.

345. Well-organised markets can also be a source of very considerable income, e.g. the total revenue accruing from the general market at Kumasi for 1938 was £4,157.

(2) SLAUGHTER-HOUSES.

346. During the period under review, new slaughter-houses were provided at Nsawam, Takoradi (for pig slaughtering) and at Asamankese (Native Administration) ; and various improvements were carried out in several others.

(3) CATTLE SHEDS.

347. Except at Pong-Tamale, the headquarters of the Animal Health Department, no cattle sheds in the strict sense are in existance.

(4) DAIRIES.

348. No true dairies at present are to be found in the Gold Coast.

(5) AERATED WATER FACTORIES.

349. Aerated water factories are to be found in all the large centres. These premises are kept under close supervision, and the products turned out are subjected to periodic bacteriological analysis. When the standard falls below that required, i.e. the absence of *Bacillus coli* in 100 cubic centimetres, the factory is closed down until such time as the required standard is attained.

(6) RESTAURANTS AND EATING SHOPS.

350. The number of restaurants in the larger centres is gradually on the increase. They are all inspected regularly, particular attention being paid to the cooking facilities, the plate cleansing methods, and the proper protection of the food. In certain centres all restaurants have to be licensed.

(7) Bakeries.

351. Bakeries abound in all the larger centres, in some of which they have to be licensed. The points stressed are the proper storage of flour and of the finished bread, the provision of a separate room for the mixing process, etc., and the suitability of the premises for the siting of ovens.

(8) Food Inspection.

352. In all centres where Health Branch staff is stationed a regular system of food inspection is carried out in the stores and markets.

353. It is not very often that official seizure has to be resorted to, for even where large condemnations are concerned voluntary surrender is usually obtained on the issue of a condemnation certificate.

354. Wherever possible, careful inspection of cattle is carried out before slaughter, and the killing of overdriven and emaciated animals is deferred until they regain condition. After slaughter, all parts of cattle, pigs, sheep and goats are systematically inspected and stamped before being liberated for sale.

355. In most of the larger centres Soyer's stoves are available for the sterilisation of meat, when not too extensively cystiscercosed, before liberation for sale at a reduced price.

(*b*) Measures taken to spread the knowledge of Hygiene and Sanitation.

(I) TRAINING OF HEALTH PERSONNEL.

356. The school for sanitary inspectors-in-training at which a three years course is given is situated in Accra. During the year it was in the charge of a full-time African Training Officer, but a European Sanitary Superintendent assisted with the training in view of the fact that the Royal Sanitary Institute (West Africa) examination for sanitary inspectors was held in Accra in September for the first time. Twelve candidates entered for the examination and eight were successful in obtaining certificates.

357. The holding of this examination in Accra marks the beginning of a new era in the training of sanitary inspectors; and if it continues to be held at regular intervals, as is intended, it should do much to help produce inspectors of a higher standard of training. During the year, a small lending library was instituted at the school and technical books can be borrowed from it for reference purposes.

358. Village overseers are trained in Kumasi under the general supervision of the Senior Health Officer, Ashanti and Northern Territories. Before they are accepted as village overseers-in-training candidates usually undergo a period of tuition in Kumasi under the Medical Officer of Health, Kumasi Public Health Board.

359. During the year, a school for sanitary overseers was built by Government at Tamale, at a cost of £1,200, to facilitate the training of staff for the Native Administrations. This provision marks an important forward step in health education in the Protectorate.

360. Health visitors are trained at the Princess Marie Louise Welfare Centre, Accra. These officers are now required to be qualified nurses and midwives in addition to their welfare training. This new grade, in which there are at present three officers, was inaugurated in 1936 with a view to the building up of a cadre of health visitors superior in education and in technical training to the original type of health visitor recruited at the commencement of the welfare movement. The original health visitor with limited education and training has really done much better than could reasonably be expected of her. The public demands are now higher and the older type of health visitor (whose title has been changed to Assistant Health Visitor) has to give place to a much more highly trained officer.

361. In the estimates for 1938–39, provision was made for the appointment of an African Health Sister, holding the highest qualifications, to assist in the training of health visitors, and to supervise the activities of the local district midwives in Accra. Up to the end of the year this appointment had not been filled.

362. As the years pass, more and more stress has to be laid on educative methods; and as a step towards this end, a much higher standard both in preliminary education and in technical training is being demanded of Health Branch staff.

363. Midwives and subsidised midwives continue to be trained at the Maternity Hospital, Accra, for the Health Branch.

(II) GENERAL HEALTH EDUCATION.

364. It may be that in the future the responsibility for the sanitation of large areas in the Gold Coast will devolve on representative township boards and Native Administrations. The sanitation of a country such as the Gold Coast, if advance is to be made, cannot be undertaken by Government unaided by local effort.

365. For this reason it is considered that every endeavour should be made to interest and instruct the general public in health measures and the necessity for them. So far, the popular clamour is for hospitals and treatment and still more treatment, but it is essential that prevention should come to be viewed, generally, in its true perspective.

366. Hygiene is a subject that is taught in all the schools and great weight is attached to this subject on visits of inspection by officers of the Education Department. Close co-operation exists between the Education Department and the Medical Department in the furtherance of health knowledge.

367. *The Teachers' Journal* with its large circulation is an excellent medium for health propaganda, and its pages have, as in the past, generously been made available for several important articles by members of this Department dealing with health subjects.

368. The junior section of the Red Cross Society, now comprising 54 Links scattered throughout the Gold Coast, is a very valuable means for interesting and educating the young and, through them, the public. Several Links have entered candidates successfully for the Society's examinations in first-aid and home nursing.

369. The Gold Coast League for Maternal and Child Welfare Section of the Red Cross Society has done excellent propaganda work among the African mothers, particularly at the district weighing centres.

370. All officers of the Health Branch, whatever their duties may be, of a necessity devote a considerable proportion of their time to health education and propaganda.

371. In several centres health days are held at regular intervals.

372. In all welfare centres health education of the highest value is continually being given. The most important factor in welfare work—both infant and maternal—after all, is the educational factor. The propagation of health knowledge is also continually carried out in the homes of the people, and is an activity, as it has been previously explained, in which all officers of the Health Branch take part.

373. A good deal has been and is being done but more remains to be accomplished.

374. Health propaganda and education require wide extension on a general scale, and the best means of carrying this out would appear to be through the medium of the cinematograph.

375. A committee has already been appointed composed of representatives of interested departments, under the chairmanship of the Director of Agriculture, for the purpose of advising Government on the possibilities of using the cinematograph to further propaganda and education in subjects essential to the welfare of the public.

376. The Broadcast Service has on more than one occasion proved of great value by making it possible to get into touch with the general public at short notice.

377. The Red Cross Public Health Museum has been added to during the year, and a generous donation from the Society has enabled the purchase to be made of a full set of public health educational posters from the Royal Sanitary Institute, London. A gift of models of sanitary structures and local posters has also been received from the Medical Department of Nigeria.

378. A good deal has been and is being done towards the education of the general public in health matters. Much more however is required. If future advance is to be possible, the people require to be taught that they must help

themselves and not wait for everything to be done for them. A sense of responsibility, of concern for the well-being of others, of civic pride, and of self-help, an organising capacity and the faculty for sustained effort require to be implanted, fostered and then maintained.

IV—(HEALTH BRANCH) PORT HEALTH WORK AND ADMINISTRATION.

379. No Gold Coast port was declared infected during the year.

380. At Accra 597 ships touched at the port involving the handling of 221,398 tons of " in and out " cargo, compared with 614 ships and 320,633 tons of similar cargo in 1937. Some 4,683 immigrants and deck passengers landed, compared with 7,147 during 1937, and were appropriately dealt with.

381. Some 740 ships of 3,373,135 gross registered tonnage entered the port of Takoradi during the year, compared with 784 ships of 3,689,387 gross registered tonnage in 1937.

382. During 1938, the inward passenger traffic included 3,279 deck-passengers and 6,203 trans-immigrants, compared with 2,271 and 6,658, respectively, for 1937. The outward passenger traffic of deck-passengers and trans-immigrants totalled 10,030, compared with 10,180 for 1937.

383. During 1938, some 20,035 tons of water were supplied to shipping from hydrants on the wharf and 9,000 tons from the water barge, compared with 24,400 and 9,150 tons respectively in 1937.

384. It is reported that firms trading regularly with West African ports are taking more precautions with respect to malaria prevention among the crews of their ships ; but that the system, generally adopted, for the taking of prophylactic quinine is unsound ; on this the Port Health Officer, Takoradi, writes :—

> " It seems to aim at getting as much quinine as possible into the men's systems prior to arrival on the coast. On the other hand, there seems to be an idea that as soon as the vessel leaves the last coast port the taking of quinine may cease."

385. The Seamen's Institute continued to flourish throughout the year.

V—(HEALTH BRANCH) MATERNITY AND CHILD WELFARE.

386. It must be borne in mind that, in addition to the special welfare activities commented on in this section of the report, must be added the work in this branch of prevention which is carried out to a varying degree in every station hospital and dispensary in the Gold Coast. Government institutions, the Red Cross Society and the Missions actively participate in the work.

387. The following table summarizes the work carried out during the year in Government welfare centres.

TABLE XVIII.

Government.	Attendances.			
	Children.		Expectant mothers.	
	1937.	1938.	1937.	1938.
Accra	20,179	15,725	1,074	1,180
Kumasi	13,653	9,942	12,489	12,757
Total	33,832	25,667	13,563	13,937

388. The Government welfare centres at Accra and Kumasi are in the charge of Women Medical Officers.

389. It is likely in the future that cases attending for treatment will show a steady annual fall. The mass of disease which, at the beginning of the welfare movement in the Gold Coast, loomed so large at all the welfare centres is generally not so insistent as it once was ; and the preventive educational side of welfare work is gradually taking its proper place in the scheme. This consideration is very pronounced in Accra, where the work is soundly organised, but where accommodation for educational purposes still seriously hampers progress.

390. In both these Centres ward accommodation is provided ; and in Accra and Kumasi respectively 541 and 581 in-patients were treated during the year.

391. There is no maternity hospital as yet in Kumasi, and a certain number of women are delivered at the welfare centre. In 1938, some 120 women were delivered, compared with 109 in 1937.

392. The following table shows the work carried out at the various Red Cross Welfare Centres.

TABLE XIX.

Red Cross.	ATTENDANCES.			
	Children.		Expectant mothers.	
	1937.	1938.	1937.	1938.
Cape Coast	9,414	7,831	5,087	4,644
Sekondi and Shama ...	9,383	9,175	5,248	6,309
Koforidua	21,345	17,819	9,773	10,420
Total	40,142	34,825	20,108	21,373

393. Of the Red Cross welfare centres that at Koforidua is in charge of a Woman Medical Officer ; and those at Sekondi (with Shama) and at Cape Coast are in charge of qualified Red Cross Health Sisters.

394. The work accomplished at the various Mission Welfare Centres is shown in the following table :—

TABLE XX.

Missions.	ATTENDANCES.			
	Children.		Expectant mothers.	
	1937.	1938.	1937.	1938.
Djodje (Roman Catholic)	3,195	762	187	571
Eikwe (Roman Catholic)	30,928	8,992	—	219
Kpandu (Roman Catholic) ...	31,345	23,205	792	518
Akim Swedru (Roman Catholic) ...	—	11,767	—	7,582
Amedzope (Bremen Mission) ...	1,332	1,511	19	2,283
Total	66,800	46,237	998	11,173

395. It is not easy to present the figures received from the missions in a form comparable to the result of the year's work recorded from the Government and Red Cross welfare centres.

396. A good deal of the work of the Mission centres, apparently, refers to the treatment of general cases of adult sickness ; and there is little uniformity in the method of submitting the returns.

397. Most of the Government and Red Cross welfare centres lay stress on the fact that the large majority of the seriously sick children now come from the surrounding rural areas, and not actually from the local town itself. This is encouraging, as it would appear to indicate that the preventive measures adopted in the towns are achieving their end—i.e. the prevention of sickness.

398. One of the chief preventive measures is the district weighing centre. At Accra there were 37,760 and at Kumasi 28,073 attendances of children at the district centres for weighing and advice, compared with 41,524 and 33,458, respectively, during 1937.

399. The fall in numbers attending was due, in Accra, to unavoidable changes of staff ; and in Kumasi to the resignation and loss of the services of the special Sister heretofore engaged whole-time in the work.

400. The work done at these weighing centres is most valuable in forestalling disease, and is purely preventive. The ladies of the Gold Coast League for Maternal and Child Welfare Section of the Red Cross Society did very good work throughout the year at these weighing centres.

401. Subsidised midwives when taking up practice in a district often organise a weighing centre. Such an undertaking results in the midwife making contact with a number of women and thus aids her in building up a practice and assuring her position.

402. The Health Branch staff contains nine midwives (one vacancy) and 28 subsidised midwives (two vacancies) subsidised midwives receive £3 a month from Government to enable them to support themselves until they have built up a practice ; they are required to settle down where it is considered that their services are most necessary, and each month, before payment of the grants is made, the local Medical Officer of Health has to certify that her work has been satisfactory.

403. The following table summarizes the work of the midwives and subsidised midwives for 1938 compared with the results returned for the previous year :—

TABLE XXI.

Number of midwives and subsidised midwives.		Number of deliveries.	
1937.	1938.	1937.	1938.
28	*37	2,554	2,803

* Of this total not all were continuously on duty throughout the year.

404. The number of births attended by midwives now covers slightly over 24 per centum of the total number of births registered (11,265).

405. Next year (1939) the number of subsidised midwives will reach the maximum (34) laid down for the first part of the midwifery service scheme. It will then, before the service is still further expanded, be necessary to consider means based on the knowledge and experience acquired over the last few years for the effective supervision of the midwives in practice.

406. Subsidised midwives have now extended the scope of their activities beyond the larger centres into more rural areas, and as the value of their work becomes known to a growing public the demand for their services increases steadily. There is a limit, however, beyond which expansion cannot be permitted to outstrip supervision.

407. There has been little extension of the service, as yet, into the more rural districts of Ashanti, and none in the Northern Territories.

408. In the Protectorate, female education appears to be the key to the situation.

Recommendations for Future Work.

1. The Townships Bill and the Public Health Bill should be proceeded with. The question of the extension of sanitary control is now of urgent importance. In many centres the establishment of statutory boards is becoming increasingly insistent, e.g. Tarkwa, Takoradi, Nsawam, Suhum, Mangoase, Bibiani, Swedru, and others.
2. The Asere slum area in Accra should be cleared.
3. A water carriage sewer-borne conservancy system should be provided for the central area of Accra.
4. There should be increase in staff of one Assistant Director of Health Service ; two Sanitary Superintendents ; three Health Visitors, and six Sanitary Inspectors-in-Training.
5. The proposed extension to the Princess Marie Louise Welfare Centre, Accra, should be proceeded with as soon as possible, to provide the urgently required accommodation for teaching and educational purposes.
6. The investigation into the question of the provision of a pipe-borne water supply for Tarkwa should be completed and the supply established.

7. The people should be educated, generally, in the necessary health measures to ensure for the future a readiness on their part to take over an increasing share of the responsibility and burden with a view to the elevation of health conditions throughout the Gold Coast. At present, it is obvious that many of the unenlightened consider that vociferation of demand is all that is required of them. A fully equipped "propaganda unit" is now somewhat overdue.

J. M. MACKAY,
Deputy Director of Health Service.

VI—HOSPITALS, DISPENSARIES AND VENEREAL CLINICS, ETC.

409. A list of hospitals, welfare centres and similar institutions is given in Appendix I and Return D contains a summary of all patients dealt with at these places. The table below gives a comparison of the totals for the past three years.

TABLE XXII.

PATIENTS TREATED.

Year.	Remaining in hospital.	Total cases treated.	Percentage increase or decrease on previous year.	Deaths.	Remaining in hospital.	Number of deaths per 1,000 of in-patients treated.
1936	2,165	311,211	+13·8	2,082	2,049	76·8
1937	2,049	330,092	+ 6·1	2,247	2,058	79·6
1938	2,052	323,990	—1·8	1,945	2,236	68·9

410. The steady increase in the work being done in the three chief centres of population appears in the following table :—

TABLE XXIII.

AFRICANS AND EUROPEANS (IN-PATIENTS).

Station.	1936. In-Patients treated.			1937. In-Patients treated.			1938. In-Patients treated.		
	Africans.	Europeans.	Persons.	Africans.	Europeans.	Persons.	Africans.	Europeans.	Persons.
Accra	3,327	315	3,642	3,073	408	3,481	3,989	379	4,368
Sekondi and Takoradi	1,328	354	1,682	1,612	473	2,085	1,575	378	1,953
Kumasi	2,989	228	3,217	3,371	241	3,614	3,068	199	3,267
Totals ...	7,644	897	8,541	8,056	1,122	9,180	8,632	956	9,588

411. The average cost per patient per day at the principal European and African hospitals is shown below:—

TABLE XXIV.

COST PER PATIENT

	1938. s.	d.
European Hospitals :		
(Accra, Tamale, and Kumasi)	4	6
African Hospitals :		
(Gold Coast Hospital, Accra, Axim, Cape Coast, Koforidua Tamale and Winneba)	0	9

Accra.

412. The Gold Coast Hospital is the largest and best equipped of our hospitals and is the main training centre of the Department for nurses and dispensers.

413. A new block for tuberculosis and infectious diseases under construction is nearing completion. It is hoped that it will be ready for occupation in the second quarter of 1939.

414. The following paragraphs, which have been extracted from the report of the Resident Medical Officer will indicate the volume and the scope of the curative work undertaken during the year.

415. The Out-patient Department was as busy as in former years. The following summarizes its activities during the year :—

New out-patients numbered 17,903 males, 12,002 females 5,901 an increase of 1,289 as compared with 1937.

Subsequent attendances	77,294
Male dressing room attendances ...	29,107 dressings.
Female dressing room attendances ...	10,701 dressings.
Gynaecological Clinic attendances ...	4,139
Yaws Clinic attendances	7,446
Venereal Diseases Clinic attendances ...	10,166
X-ray Department	9,035
Dental Department	given separately.
Dispensing Department	68,859 prescriptions filled.
Ambulance calls	1,064

416. There is a staff of two full-time Medical Officers, one European and one African, with two other part-time Medical Officers working in the out-patient department, in addition to the Dental Surgeon, and two Radiographers.

417. There is a dispensary with a staff of a Chief Dispenser and six dispensers on day duty and one dispenser on duty call by night.

418. The ambulance with a day and night staff is kept constantly busy as will be found from the above figure of the calls made in the town and district.

419. During the year, the health of the local African official community was on the whole good. There was a marked drop in the number on the sick list compared with 1937. The number attending for minor ailments but not put on the sick list was about the same. The commonest illness was malaria ; quite a third of those attending shewed this either as a primary cause or as a complication of other illness. Seven officials, all male, died during the year. The causes of death were :—

Intestinal perforation following typhoid ;
Intestinal obstruction with general peritonitis ;
Myocardial failure ;
Carcinoma of stomach ;
Fracture of skull ;
Pulmonary tuberculosis ;

Six officials were invalided.

Out of a total of 328 on the sick list, 262 were males and 66 females.

420. Compared with 1937, the year 1938 was conspicuously free from yellow fever, one case only being reported.

421. The decrease in attendances following the yellow fever epidemic in 1937 stopped in the last quarter of that year and the rapid improvement in the figure during the first quarter of 1938 resulted in a final increase of 1,289 for the current year. The quarterly figures for 1938 are interesting, being :—

4,732	... 1st quarter
4,657	... 2nd quarter
4,286	... 3rd quarter
4,228	... 4th quarter.

422. The number of cases in the enteric group of fevers showed an increase, twenty-six cases of typhoid being admitted, with four deaths. No case of relapsing fever was seen. There was a small number of cases of schistosomiasis but the number of these from local sources gets lower each year. Patients suffering from trypanosomiasis were also fewer. Mumps and measles occurred sporadically in the last few months of the year, but there was no severe outbreak. There was a definite increase in the number of cases in the dysentery and diarrhoea group but the actual number of amoebic and bacillary dysentery identified was small. A few cases of leprosy were seen from villages some distance from Accra. Of the respiratory diseases, bronchitis was the most common ; pneumonia cases were fewer in number. The new drug M. & B. 693 was used for pneumonia cases at the end of the year, shortly after its introduction. Results have so far been good.

423. The commonest illnesses seen were malaria and yaws. The level of illness for malaria remains fairly constant from year to year, but it is noticeable that the incidence of yaws in the urban area has decreased very markedly.

424. Pulmonary tuberculosis remained one of the high mortality-rate diseases. Taking the group hospitalized as an index, 129 in all were admitted with the disease, the majority, as in past years, being of the labouring type, immigrants to the country. The proportion of males to females was 106 to 18. The death-rate of the whole group was 61·24 per cent. In 66·7 per cent of the cases the lungs were extensively affected in both sides and in the remaining 33·3 per cent one lung extensively and the other to a slight degree. In 67·6 per cent of all cases, the tubercle bacillus could be demonstrated in the sputum readily, and in the remaining 32·4 per cent intermittently. The last group appeared to be of the more chronic fibroid type. The longest stay in hospital was 360 days, an advanced case with repeated haemoptysis who eventually developed tuberculosis meningitis. The shortest stay was less than a day. In only one case during this period could a real clinical cure be said to have occurred. Collapse therapy was tried in a number of cases but with poor success.

425. One difficulty in dealing with nearly all types of patients who came into hospital with this disease is the difficulty in persuading them to stay. Especially is this the case with the illiterate labouring type in whom the desire to resume active work as soon as they feel a little better is always marked. The average stay in hospital was 36·16 days. At present, with rare exceptions, we only get the advanced cases in a stage of active invasion. Resistance to the disease is slight especially in the immigrant group where the border line between malnutrition, poor-nutrition and starvation is faint.

426. With resistance to the disease so poor, it is certain that at the moment prevention rather than cure is the most important step in the subjugation and final eradication of the disease. Education of the public in its dangers and in the advantages of segregation of the infected, requires to be pressed forward.

427. At the Venereal Diseases Clinic, new patients treated numbered 670,611 being males and 59 females.

428. Gonorrhœa and its complications accounted for 505 of these. Total attendances amounted to a little over 10,000. The number treated is approximately the same as last year. As in past years, the difficulty is to get the patients to attend regularly and for a full course of treatment. The constant changing of the officer in charge of the work is a difficulty in running this part of the hospital work.

429. The work of the X-ray Department again showed an increase in the amount of both X-ray and electro-therapeutic work.

X-ray work—General	1,718	
Dental	231	
Maternity	51	
Chest	330	
Urinary	50	
Barium meals	108	
Gall-bladder	53	
Total	2,541	(European 490 African 2,051)

Massage and Electro-therapeutics :

Diathermy	692
Faradism	16
Galvanism	1,305
Massage	3,305
Radiant heat	668
Ultra violet rays	356
X-ray therapy	54
Prostatic diathermy	98
Total attendances	6,494

430. The report of the Dental Department is submitted below.

431. The total number of in-patients admitted for the year 1938 was 3,736 a slight increase on last year figures.

The daily average in the hospital was 276.

432. As in past years surgical work was the most prominent part of the hospital's activities.

Total operations numbered 3,074 :—

Major	801	Males	594
		Females	207
Minor	2,273	Males	1,975
		Females	298

The classification of operations is given below :—

1. *Head and Neck.*

Decompressions	2	
Osteomyelitis of jaw	2	
Glands of neck	12	
Toxic goitre	1	
Adenoma of thyroid	3	
Injuries—cut throat	1	
Injuries—cut tongue	1	
Hare lip	1	
Tongue tie	2	
Cysts and tumours	8	
Sarcoma of jaw	5	
		38

2. *Vertebral Column and Spine.*

Tumours	1	
		1

3. *Ear, Nose and Throat.*

Mastoid	7	
Tonsils and adenoids	4	
Tracheotomy	6	
Nasal polypi	7	
Frontal sinus	1	
Maxillary antrum	26	
Dental extraction	93	
Removal foreign bodies	7	
Plastic operation of ear	2	
		153

4. *Eyes.*

Cataract, enucleation of	9	
Enucleation of eye	8	
Evisceration of eye	7	
Iridectomy	3	
Removal foreign body	4	
Entropion	4	
Ectropion	1	
Pterygium	3	
Cysts	15	
Osteomyelitis of orbit	3	
Plastic operation for fitting artificial eyes	8	
Cauterization of eyes	37	
		102

5. *Chest and Lungs.*

Empyema	5	
Tumours of chest wall	1	
Glands of axilla	1	
Aspiration of chest	1	
Artificial pneumothorax	6	
		14

6. *Abdominal.*

Hernia, inguinal, uncomplicated	158	
Hernia, strangulated	38	
Hernia, femoral	1	
Liver abscess	1	
Acute intestinal obstruction	4	
Splenectomy	2	
Ileostomy	2	
Typhoid perforation	2	
Exploratory laparotomy	21	
Tumours of abdominal wall	3	
Appendicectomy	15	
		247

7. *Rectal.*

Stricture of anus	2	
Haemorrhoids	43	
Fistula in ano	26	
Prolapse of rectum	2	
		73

8. *Gynaecological.*

Total hystereotomy	1	
Subtotal hysterectomy	6	
Myomectomy	25	
Slinging of uterus	1	
Oophorectomy	9	
Salpingectomy	5	
Salpingo-oophorectomy	3	
Broad ligament cysts	1	
Repair of vesice-vaginal fistulae	10	
Repair of recto-vaginal fistulae	4	
Dilation and curetting of womb	46	
Amputation of cervix	3	
Colpo-perineorrhaphy	4	
Urethral caruncle	3	
Elephantiasis of vulva	2	
Ruptured ectopic gestation	4	
Granuloma of vulva	2	
Imperforate vagina	4	
		133

9. *Genito Urinary.*

Obstructed ureter	1	
Supra pubic cystotomy	48	
Cystoscopy	1	
External urethrotomy	23	
Internal urethrotomy	2	
Excision of hydrocele	44	
Epididymectomy	1	
Excision of scrotal fistulae	22	
Excision of perineal fistulae	11	
Extravasation of urine	3	
Elephantiasis of scrotum or penis	9	
Dilation and catheterization	916	
		1,081

9. *Genito Urinary—contd.*		
Circumcisions	143	
Plastic operations on penis	13	
Cock's puncture	5	
Orchidectomy	5	
Repair of supra-pubic fistulae	3	
Incision of bubo	5	
		174
10. *Diseases and Injuries of Bones and Joints.*		
A—OSTEOMYELITIS	55	
Tuberculosis of joints	1	
New growths	4	
Drainage of joints	4	
		64
B—FRACTURES.		
Simple reduction and plaster	146	
Open operation for	12	
Insertion of Kirschner wire	5	
Compound fractures	11	
		174
C—DISLOCATIONS.		
Reduction	12	
Open operation	1	
Osteotomy	9	
Tenotomy	2	
Talipes equino varus-tenotomy and p.p.s.	2	
Manipulation of joints and plaster	116	
		142
D—AMPUTATIONS.		
Arm	3	
Leg	12	
Foot	1	
Toe	13	
Finger	12	
		41
11. *Skin and Subcutaneous Tissue.*		
A—INFECTIONS.		
Scraping of ulcers	33	
Cellulitis	13	
Muscle abscess	55	
Whitlows	38	
Superficial abscess	97	
		236
B—NEW GROWTHS.		
Keloids	12	
Fibromata	11	
Tumours for biopsy	8	
Tumours for excision	15	
		46
C—PLASTIC.		
Skin grafts	12	
Plastic operations	5	
Wounds stitched	161	
Removal of foreign bodies	10	
Kandolen's operation for elephantiasis	1	
Cleaning and spraying burns	2	
Excision of sinuses	12	
Removal of glands	9	
		212
12. *Operations on Nerves, Blood Vessels, Tendons.*		
Operation on veins	2	
Repair of tendons	5	
Excision of ganglions	22	
Suturing for haemorrhage	9	
		38

13. *Miscellaneous.*

Removal of warts	2	
Cervical cauterization	67	
Aspiration of glands	6	
Varicose vein injection	4	
Removal of nails	8	
Dressing under G.A.	18	
		105

433. Hernia operations showed a slight increase, 197 cases being operated on of whom 38 were strangulated. Two cases of typhoidal perforations were operated on during the year with one death.

434. Gynaecological surgical side work again showed an increase, 133 cases being operated on as against 99 last year.

435. Genito-urinary surgical conditions still arrive in increasing numbers from still further afield, for renal, prostatic and urethral conditions. One thousand two hundred and fifty-five patients were operated on as against 1,178 last year.

436. Last year yellow fever was the outstanding feature in the medical work of the hospital. This year only one case was seen. Typhoid fever admissions showed a decrease. Twenty-six cases being admitted with four deaths. Pneumonias was not quite so common this year, there being 44 cases with 13 deaths. Types of pneumococcus have for the first time being worked out by the Research Institute and so far six types of pneumococcus have been isolated—1, 2, 3, 7, 12, 23. Cases of carcinoma showed a slight increase. Three cases of diphtheria were treated as in-patients with one death. One case of acute poleomyelitis was seen. Usually such cases come to us a long time after the original onset of the disease. This case improved a great deal under hospital treatment.

437. The cases of trypanosomiasis admitted were as in previous years nearly all advanced cases in people of the immigrant labouring class, who were in several instances picked up from the wayside and sent to hospital by the police, as being unfit to look after themselves. Few cases are seen amongst the local people.

438. The incidence of helminthic infections amongst the in-patients was lower than in previous years. Ankylostomiasis for the first time headed the list of the helminthic infections noted, followed closely by ascariasis. These helminthic infections do not as a rule appear in the in-patient returns, being in many cases put down as complications not as the original disease.

REPORT OF THE WORK OF THE DENTAL CLINIC.

439. The Dental Surgeon was on duty during the year.

440. In addition to the work carried out at Accra two visits were paid during the year to the following stations: Kumasi, Sekondi, Cape Coast, and one visit to Dunkwa and Tamale.

441. Treatment was given to 478 European officials and 3,391 African officials, as well as to 576 European and 1,488 African non-officials, amounting to a total of 5,933.

442. The following table gives a comparative analysis of cases treated in the past three years :—

TABLE XXV.

	1936.	1937.	1938.
Officials (European)	555	215	478
Officials (African)	2,919	1,100	3,391
Non-officials (European)	595	246	576
Non-officials (African)	1,111	504	1,488
Total	5,180	2,065	5,933

443. The following table shows the number of dental operations performed :—

TABLE XXVI.

	Officials.	Non-officials.	Total.
(*a*) Extractions	2,904	1,165	4,069
Local Anaesthesia	2,980	1,075	4,055
General Anaesthesia	9	5	14
(*b*) Fillings :			
Gold	4	3	7
Amalgam	465	380	840
Porcelain	151	129	280
Cement	469	378	845
Temporary	341	231	472
(*c*) Dressings :			
Including root treatments	598	606	1,204
(*d*) Scalings	626	522	1,148
(*e*) Bridges, crowns, and other restorations ...	5	7	12
(*f*) Dentures	129	138	267
(*g*) Repairs to bridges	133	126	259
(*h*) Minor treatment	42	53	95

444. The chief pathological conditions met with were as follows :—

TABLE XXVII.

(1) Dental Caries	3,528
(2) Alveolar Abscess	378
(3) Pulpitis, acute and chronic	92
(4) Periodontitis, acute and chronic	71
(5) Excessive calcific deposit	12
(6) Cases diagnosed as true pyorrhoea	538
(7) Gingivitis	107
(8) Septic roots	225
(9) Stomatitis	32
(10) Sepsis arising in connection with eruption of permanent dentition	48
(11) Malposition of teeth	27
(12) Fracture of teeth	18
(13) Necrosis of alveolus	5
(14) Neuralgia of non-dental origin	—
(15) Polypus of pulp	5
(16) Pulpstones	2
(17) Excessive post-extraction haemorrhage	4
(18) Supernumerary teeth	23
(19) Dental cyst	1
(20) Epulis	2
(21) Fibrous sarcoma of jaw	1
(22) Antrum disease	2
(23) Cancrum oris	—
(24) Fracture of jaw	2
(25) Chronic perforating hyperplasis of pulp	Nil
(26) Epithelioma	2

W. H. DONALD,
Dental Surgeon.

Kumasi.

445. Little need be said of the Kumasi hospitals. Both are antiquated buildings and it is hoped at some not distant date to replace them by modern up-to-date hospitals. Under these adverse circumstances much good work is, however, being done.

446. The following table gives a review of patients treated and surgical work done. The decrease in out-patients—which has taken place also at Agogo Mission hospital—is explained by the peculiar climatic and economic factors of 1938.

TABLE XXVIII.

	1936.	1937.	1938.
Out-patients	12,714	11,852	9,818
In-patients	2,989	3,371	3,267
Major operations	139	136	142
Minor operations	631	540	521
Daily average of in-patients	139	145·6	138

Tamale.

447. A marked increase inpatients has taken place this year. This is a real increase and not due to any falling off of cases in the dispensaries. This is shown by the drop in the number of yaws cases treated at Tamale hospital.

TABLE XXIX.

	1936.	1937.	1938.
Out-patients	13,572	12,253	15,449
In-patients	1,526	1,226	1,316

448. A new dispensary block was opened during the year. This has supplied a real need. The old block is now used as store accommodation.

449. A new operating theatre with preparation and sterilising rooms was also opened during the year. It is well equipped and has proved a boon to the district. The old theatre will, it is hoped, be turned later into an X-ray room. At present it serves as a lecture room.

450. The operation figures correspond very closely to those of 1937. Three hundred and seventy-six operations were performed of which 225 were for entropion.

Sekondi.

451. The steady growth in importance of this hospital which was referred to last year continues as is evident from the figures in the following tables.

TABLE XXX.

	1936.	1937.	1938.
In-patients	1,279	1,612	1,575
Out-patients	7,019	7,388	9,416
Total	8,298	9,000	10,991

TABLE XXXI.

OPERATIONS.

	1936.	1937.	1938.
Major	80	145	152
Minor	300	474	396
Total	380	619	548

452. The buildings are old, out of date and make efficient running of the hospital extremely difficult. Government has, however, prepared plans for a new hospital—similar in construction to the new Cape Coast hospital—to be erected between Sekondi and Takoradi. This will ensure consolidation of the increasing amount of work being done.

Village Dispensaries.

453. The following table gives a list of village dispensaries and their distribution.

454. This shows an increase of one in the Colony, one in Ashanti and five in the Northern Territories.

TABLE XXXII.

	Town in which dispensary is situated.
COLONY:	
Eastern Province	Dabala Nkawkaw Abomoso.
Central Province	Fanti-Yankumasi Elmina.
Western Province	Anwiawso Enchi Essiama Wioso.
ASHANTI	Wenchi Kintampo Atabubu.
NORTHERN TERRITORIES	Bole Gambaga Garu Tumu Walewale Zuarungu Kete-Krachi Sandema Hian Karaga Zabzugu Fian Prang Yeji Grube Ketiu.

28//

Government Medical Scholarships.

455. This scheme of which a full description was given in last year's report continues to progress satisfactorily.

456. Its effects in future years will be of great value to the country by providing a steadily increasing number of fully trained African practitioners.

457. Three scholars are at present in the United Kingdom pursuing medical studies and three are at Achimota engaged in preliminary study.

Government Dental Scholarships.

458. In 1937 the Secretary of State approved of a scheme to provide scholarships so as to enable suitable Africans to study dentistry in the United Kingdom.

459. Two candidates were selected in 1938 and, after a preliminary period of probation under the Government Dental Surgeon, are now in residence at Achimota to pursue their preliminary studies before proceeding to the United Kingdom.

Mission Hospitals and Dispensaries.

460. The Basel Mission maintains a well-equipped up-to-date hospital at Agogo in Ashanti.

461. The hospital staff consists of two Mission doctors and three European sisters.

462. The hospital contains 100 beds for African and eight beds for European patients, and there were 1,049 and 92 admissions respectively during the year.

463. Out-patients totalled 4,089. Though these figures show a decrease from the previous year they provide evidence of the amount of good work that is being done.

464. A new X-ray department was opened in October and has already proved of great value for diagnosis.

465. The following table shows the surgical work being done (figures include maternity cases):—

TABLE XXXIII.

	1936.	1937.	1938.
Major operations	65	160	153
Minor operations	320	639	567

466. The Roman Catholic Mission continue their services at Jirapa, Kpandu, Djodje and Eikwe, and have opened another station at Akim Swedru in the Central Province.

467. A Welfare Centre at Amedzope is conducted by the Bremen Mission.

VII—PRISONS AND ASYLUMS.

(*a*) **Prisons.**

(*Compiled with the aid of information given by the Director of Prisons.*)

468. Government central prisons are situated at Accra, Kumasi, Sekondi and Tamale and accommodate all long-sentence prisoners, i.e. prisoners sentenced to periods of over two years, as well as local short-sentence prisoners. Long sentence prisoners are on occasions transferred to local prisons if they are men skilled in building, etc.

469. Well-equipped workshops in the central prisons teach prisoners tailoring, woodwork, shoemaking, weaving, basket-making, upholstery, masonry, etc. Kumasi at present has under construction new workshops which will contain a power plant.

470. All central prisons are provided with infirmaries in the charge of warder dispensers. These infirmaries are inspected daily by the prison Medical Officers.

471. Local prisons—twenty-one in number—are placed at district headquarters and accommodate short-term prisoners who are engaged mainly in extra-mural labour and general station work.

472. Elmina prison provides wards for the segregation of prisoners suffering from leprosy and phthisis. Invalid prisoners are taught light handicrafts in which they take great interest. Part of this prison is set apart for female prisoners.

473. Accra and Kumasi accommodate female prisoners under the charge of trained prison matrons. Accommodation also exists for short-sentence female prisoners at Tamale, Keta, Ada and Akuse.

474. Except at Tamale all prisoners sleep in association cells. In local prisons these cells provide accommodation for 15 to 20 prisoners. In the central prisons cells accommodate as a rule three prisoners only.

475. Prisoners work from 6 a.m. to 11 a.m. and from 12.30 p.m. to 3.30 p.m. Food is served at 5.30 a.m., 11 a.m. and 3.30 p.m.

476. The daily average population again shows an increase.

1936.	1937.	1938.
1,845	1,933	1,986

477. The following return gives a comparative statement of deaths and daily average on the sick list :—

Year.	Daily average on sick list.	Percentage.	No. of deaths.	Deaths per thousand.
1937	49·93	2·58%	45	23·27
1938	52·51	2·64%	36	18·12

478. Rations are according to the scale laid down in the prison regulations, but of late years these diets have been improved by the introduction of fruit and a greater variety of food is now obtainable in the large towns where the central prisons are situated. This enables better food to be issued.

479. In some districts millet and guinea-corn replace maize and cassada. In the Northern Territories and certain Ashanti prisons yams and plantains are substituted but the actual food weights are constant. Fish supplied through the Crown Agents is a daily issue except when meat is substituted.

480. The general health of the prisoners was good, and sickness was fairly evenly distributed througohut the year.

481. The number of cases of chicken-pox in Accra prisons was greater this year. Sporadic cases occurred throughout the year. As most are traceable to admission in the incubation period, all new prisoners are isolated for a period of 14 days after admission. Outbreaks of chicken-pox occurred also in the Keta and Ada prisons, but only one case was seen at Sekondi.

482. Pulmonary tuberculosis has shown a marked decline in incidence and was totally absent in Sekondi prison. Tuberculosis of the lymphatic system rose from two cases in 1937 to nine cases in 1938. The source of infection was traced and no further cases have occurred.

483. Two cases of pellagra were diagnosed in Accra prison.

484. Diseases in the local prisons correspond to the type most prevalent in the district as, e.g. schistosomiasis at Ada and dracunculosis at Keta.

485. The prisons serve as collecting centres for lunatics both civil and criminal. This is an unfortunate arrangement as there are no proper facilities for segregating these people and there is no properly trained staff to look after them.

486. Prisoners are weighed monthly and almost always show an increase in weight and their physical condition is improved by regular hours of work and sleep with a balanced diet.

487. Actually many men entering prison are physically unfit and this unfitness is often the cause of the commission of a crime. A large proportion of committals especially on the coast are unfits and a large amount of work is in consequence thrown on the Medical Officers.

(*b*) Asylum.

488. The staff at the Colonial Asylum on the 31st December, 1938, was as follows :—

Alienist Officer	1
Head Attendant	1
Assistant Head Attendant	1
Matron	1
Senior Male Mental Nurses	3
Male Mental Nurses	24
Female Mental Nurses	5
Gatekeeper	1

489. On 1st January, 1938 the number of inmates in the asylum was 480. These were graded as fallows :—

Male criminals	91
Male paupers	316
Female criminals	4
Female paupers	69

490. The number of admissions during the year was :—

Male criminals	21
Male paupers	118
Female criminals	3
Female paupers	11

491. The number of admissions shows an increase of 31 as compared with 1937. During the year under review 61 patients died. This is a decrease of 11 compared with 1937 and corresponds to 9·6 per cent of the total population of the asylum during the year or 39·8 per cent of the admissions.

492. The number of patients discharged during the year was 30, this being 5·9 per cent of the daily average number of inmates in the asylum or 19·6 per cent calculated on the admission rate. Four (4) patients escaped, and one was recaptured.

493. The number of patients on the 31st December, 1938 was 536 ; an increase of 56 during the year. This was composed as follows :—

Male criminals	100
Male paupers	356
Female criminals	5
Female paupers	75

494. This figure 536 has to be compared with 382 in 1934 and 274 in 1930. The asylum population has doubled itself in eight years.

495. The following table gives a comparison of the statistics for the year 1937 in England and Wales and 1938 in the Gold Coast.

	ENGLAND AND WALES 1937.		GOLD COAST 1938.	
	Male.	Female.	Male.	Female.
1. Percentage distribution of the sexes ...	43.0	57·0	85	14·9
2. Death-rate per cent of the daily average	7·11	7·04	12·7	8
3. Discharges calculated as per cent of admissions	29·1	32·8	20·8	7·1
4. Per cent of first admissions in all admissions	73·4		94·1	
5. Number of cases of Tuberculosis (all forms fresh cases) per thousand inmates ...	6·6		73	
6. Deaths from Pulmonary Tuberculosis per thousand inmates	4·1		45·4	
7. Incidence of Dysentery per thousand inmates (Figures include Balantidial, Amoebic and Flagellate Dysentery in case of the Gold Coast)	3·6		7·8	
8. Deaths from Dysentery per thousand inmates (Figures include Balantidial, Amoebic and Flagellate Dysentery in case of the Gold Coast)	0·3		nil	

496. As mentioned in previous reports the death-rate in the asylum is very unsatisfactory. The number of deaths for the population is much too high but little can be done to improve this figure until proper accommodation and adequate nursing facilities for the physically sick are provided. It should be borne in mind, however, that many of the deaths occur in patients who are in very poor health when admitted to the asylum. The recovery rate is very low when compared with the same figures in modern mental hospitals.

497. The general health of the patients during the year was fair. The weights of the inmates other than those who were physically sick were well maintained and in many cases an increase was noted. Some of the new admissions were in a very poor state of health on their arrival at the institution.

498. There was a great increase in the number of cases of pulmonary tuberculosis this year as compared with 1937. Twenty-nine (29) new cases were noted as opposed to (7) seven in 1937. The total number of cases treated during the period under review was 31. The incidence of this disease per thousand inmates is almost ten (10) times as great as that in mental hospitals in England and Wales for the year 1936. The death-rate from pulmonary tuberculosis in the Colonial Asylum inmates was 45·4 per thousand this year and 4 per thousand inmates for the year 1936 in the mental hospitals in England and Wales. Tuberculosis accounted for 39·5 per cent of the deaths in the institution for the year under review. One (1) case of tubercular meningitis occurred and died. Overcrowding, improperly designed buildings, and the inability properly to isolate infectious cases are the main factors contributing to this statistical disparity in the figures for the Colonial Asylum and the institutions of England and Wales.

499. Trypanosomiasis associated with mental disease showed a further decrease this year. Thirteen (13) cases were admitted compared with 16 in 1937. Three (3) cases were discharged and 8 patients died with this disease. It is probable that earlier diagnosis combined with efficient treatment in hospitals throughout the Colony and the campaign in the endemic areas are the biggest factors in producing this fall. No untoward results from treatment with tryparsamide have been recorded.

500. Cerebral syphilis shows a further decrease this year. Five (5) patients were admitted with this disease as opposed to 10 in 1937.

501. There were two small outbreaks of chicken-pox during the year. The antiquated construction of the buildings and the impossibility of proper isolation caused anxiety but only seven cases occurred.

502. During the year five (5) cases have been admitted displaying the mental and physical sequelae of encephalitis lethargica. All displayed Parkinsonism with marked tremor confined to the forearm and hand. There are now four of these cases in the Colonial Asylum and all are males. As is usual, the mental symptoms are impulsiveness, irascibility, violence, destructiveness and pathological lying.

503. There are now (6) six cases of leprosy in the asylum and single rooms have to be used to accommodate them.

504. Conditions at the asylum continued to be unsatisfactory. Overcrowding and lack of accommodation are still present and make life difficult for both the lunatics and the staff. Increase of accommodation appears to lag behind the increase of the insane population.

505. The buildings are kept in a good state of repair. Unskilled labour is plentiful for the purpose of white-washing the walls and generally keeping the place clean.

506. The diet at the asylum continues to be excellent. Individual likes and dislikes are comlpied with as much as possible. All inmates receive meals of carbohydrates in the form of rice, or cassada, or gari, or kenki. In addition to this a ration of hot arkassah is issued to each patient every morning. Soup of the following varieties : ground nut, palm nut and plain soup is given twice a day accompanied by either fresh meat, mutton, salted herrings, or cod fish. The physically sick receive special invalid diet composed of fresh fish, soup, vegetables and fufu. Although the dietary continues to improve it is gratifying to note that the cost per head per patient per day remains at approximately the same low level as last year. This figure for the month of December, 1938 was 4·3*d*. This includes a paper price estimated on the contractor's figures for vegetables and crops grown in the asylum farm and garden. During the year 3,197 lb. of cassada valued at £6 13*s*. and 9,134 lb. of vegetables valued at £43 3*s*. 8*d*. were supplied. These were grown in the asylum farm and garden and added to the patients dietary.

507. A limited number of patients are employed in the asylum farm and garden. It is unfortunate that a greater number could not be allowed to work as farmers and gardeners. This is impossible, however, owing to the number of mental nurses who would be required to supervise an increased number of outside labourers. In addition, the asylum farm and garden are situated in the European Area of Accra and have no boundary wall to hinder the opportunities of escape. Over and above agricultural work, a certain number of inmates attend to the sanitation of the institution which involves washing clothes, removal of the night-soil, flushing drains and white-washing. A number of men are employed in the preparation and cooking of food. This is no light task as it involves preparing meals three times a day for 536 persons. Needless to say, this work is eagerly sought. A number of harmless and demented patients have shown a certain amount of initiative by making baskets and mats which they sell, and with the proceeds buy small luxuries which help to make their detention a little easier. The antiquated layout of the buildings and the impossibility of grading the patients do not permit any form of occupational therapy to be attempted. It is impossible to allow any instrument, such as is required to make mats, baskets or simple articles of leather, in any of the airing yards.

508. The sanitation and hygiene of the asylum is fairly satisfactory. Water of good quality is accessible in all airing courts and is unlimited in quantity. Each portion of the hospital has a bathing room with a number of showers in each. The degraded patients are washed and attended to by the nursing staff and every one is encouraged to wash before meals. Every airing court has a latrine with a number

of buckets in each, and during the night every dormitory contains a bucket. Clothing in the form of jumpers and knickers or cover cloths are supplied to all, but many of the patients refuse to wear any. Every patient is given blankets and those who desire it a bed board ; dangerous cases, however, are not supplied with the latter.

509. Government is fully aware of the unsatisfactory and overcrowded state of the asylum and views the position with much concern. Arrangements have been made to provide temporary accommodation for the overflow of patients and this should greatly improve the situation for the moment until the new mental hospital is built.

510. Unfortunately, the land acquired near Kumasi for the purpose of building a new mental hospital has had to be given up owing to political difficulties, but a new site has been chosen near Accra and it is hoped that the land will be acquired and building commenced at an early date.

VIII—METEOROLOGY.

(*a*) METEOROLOGY—MONTHLY AVERAGE FIGURES FOR THE YEAR 1938.

TABLE XXXIV.

	Temperature.					Rainfall.			Wind.
	Solar max.	Min. on grass.	Shade max.	Range.	Mean.	Amt. in inches.	Degree of humidity.	Gen. direction.	Average force.
Accra ...	140·8	71·3	84·1	14·8	79·0	1·96	76·2	S.W.	2·7
Kumasi ...	129·7	69·1	88·9	26·3	79·6	5·15	84·3	S.W.	1·0
Sekondi ...	144·9	68·7	89·7	20·7	83·8	4·47	67·2	S.	1·3
Takoradi ...	136·8	72·3	85·3	17·0	78·9	3·83	80·4	S.W.	1·3
Tamale ...	144·0	67·7	94·3	30·0	83·3	3·60	61·6	S.W.	1·9

(*b*) METEOROLOGICAL OBSERVATIONS, LABORATORY GROUNDS, KAWLI BU, ACCRA, 9 A.M. READINGS, 1938.

TABLE XXXV.

	Rainfall in inches.	Highest maximum temperature recorded.	Lowest temperature recorded.	Daily average temperature.	Temperature of the dew point.	
					Highest.	Lowest.
January ...	0·00	90	70	81·0	76	69
February ...	1·58	92	72	81·8	77	69
March	2·25	92	71	82·3	88	69
April	2·80	91	71	81·3	77	67
May	7·23	90	70	79·5	77	68
June	2·70	88	70	78·5	74	68
July	0·10	84	64	76·2	73	66
August ...	0·51	83	67	74·9	73	66
September ...	2·66	85	68	77·2	74	67
October ...	1·31	89	70	78·9	74	69
November ...	1·28	88	71	79·9	75	71
December ...	0·05	88	71	80·0	75	70

Total Rainfall 22·47 inches.

IX—SCIENTIFIC.

(*a*) **Annual Report of the Laboratory Service 1st January to 31st December, 1938.**

ROUTINE DIVISION.

511. *Anthrax.—B. anthracis* was isolated twice from human cases, and, as in previous years, these cases were met with on the post-mortem table. Infection had occurred through the alimentary tract, and the condition of the gut was characteristic, although in one case the duodenum was involved, and in the other, the last four inches of the ileum.

512. *Diphtheria.*—Ninety-eight throat and nasal swabs were examined culturally for C. diphtheriae. Five virulent strains were isolated.

513. *Dysentery—Bacillary.*—Two hundred and ninety-five specimens of faeces were examined bacteriologically. Bact. flexneri was isolated 12 times, and Sonne's bacillus once. Morgan's bacillus was isolated four times.

Protozoal.—Three thousand and eighty-six stools were examined microscopically. E. histolytica was found 43 times, Balantidium coli 12, and Lamblia intestinalis 23 times.

514. Enteric fever and infections with organisms of the salmonella group.

The following table shows the number of infections in this group:—

Organism.	Culture.			Agglutination.	P.M.	Total.
	Blood.	Urine.	Fæces.			
S. typhi	9	2	4	43	3	61
S. paratyphi	—	—	1	4	—	5
S. paratyphi C	—	—	—	5	—	5

515. *Gonorrhoea.*—Seven hundred and fifty-eight smears were examined for presence of gonococci. Organisms morphologically indistinguishable from gonococci were found in 255 or 33·6 per cent.

516. *Leprosy.*—Seventeen nasal smears were examined for the presence of Myco. leprae ; six were positive.

517. *Meningitis.*—Thirty-six cerebro-spinal fluids were received for examination. Pneumococci were found three times, streptococci twice and an haemophilic organism once. Six cases of pneumococcal meningitis were met with on the post-mortem table.

518. *Plague.*—Seven hundred and twenty-eight Crycetomys gambianus and 5,364 R. rattus were received from the Health Branch ; none was positive for plague.

519. *Syphilis and Yaws.*—Three thousand five hundred and eighty-nine Wassermann tests were carried out, one thousand three hundred and twenty-one or 36·8 per cent were positive, a rather lower figure than in the past few years.

520. *Tuberculosis.*—Five hundred and seventy-one sputa were examined by staining 216 or 37·9 per cent were positive. Twenty-nine specimens of pus, etc., were examined, nine were positive.

521. *Typhus Group.*—The Weil-Felix test was carried out on 53 sera from patients with pyrexia with the following results. Six sera agglutinated the Oxford standard suspension of proteus X 19° in dilutions varying from 1·125 to 1·5120. These six sera were from patients residing in Cape Coast and Winneba. Marked prostration was a feature of the Cape Coast cases. Two temperature charts are shown. Typhus as it occurs in the Gold Coast is apparently of the murine type.

522. *General Bacteriological Examinations.*—These numbered 867 and included blood cultures and cultures of pus, urine, pathological fluids and swabs from the uterus.

The table shows the results of blood culture :—

Organisms.	Number of times isolated.
Bact. coli	2
Bact. fæcalis alkaligines	2
Diphtheroid	1
Past. septica	1
Pneumococcus	6
Salmonella typhi	9
Staph. aureus	2
Strep. anaerobic	1
Strep. haemolytic	5
Strep. viridans	2
Cultures postive	31
Cultures negative	61
Total	92

The isolation of Past. septica from the blood is of particular interest as this is one of the first cases in which human infection with this organism has been established. The case will be described fully in one of the scientific journals.

523. *Schistosomiasis.*—Further experiments were carried out with tadpoles which show that the fruit of Balanites wilsonia does not contain a lethal principle like that of Balanites aegyptica.

BACTERIOLOGICAL EXAMINATIONS OF WATER.

		B. coli present specimens enumerated according to smallest volume (c.cs.) in which B. coli found.					
Source.	*Negative.*	100	10	1	0·1	0·01	*Totals.*
ACCRA.							
No. 1 Final Filter ...	18	—	—	—	—	—	18
No. 2 ,, ,, ...	17	1	—	—	—	—	18
No. 3 ,, ,, ...	17	—	—	—	—	—	17
No. 4 ,, ,, ...	17	—	—	—	—	—	17
No. 5 ,, ,, ...	17	1	—	—	—	—	18
No. 6 ,, ,, ...	17	1	—	—	—	—	18
Laboratory tap	51	1	—	—	—	—	52
Stand pipes in town	4	—	—	—	—	—	4
Achimota	2	—	—	—	—	—	2
Store High Street	1	—	—	—	—	—	1
Store Zion Street	3	1	2	3	2	—	11
Achimota Swimming Bath ...	7	—	—	—	—	—	7
Mineral Waters ...	142	—	4	1	1	—	148
OUTSTATIONS.							
Konongo	—	—	1	—	—	—	1
Obuasi	1	—	3	—	—	—	4
Cape Coast	6	—	—	—	—	—	6
Somanya	—	—	—	—	4	—	4
Winneba	14	—	—	—	—	—	14
Dunkwa	—	—	—	—	1	—	1
Ashanti Adowsena Goldfields	—	—	—	1	3	—	4
Saltpond	2	—	—	—	—	—	2
Mineral Waters, Cape Coast ...	6	—	—	—	—	—	6
Totals	342	5	10	5	11	—	373

OTHER EXAMINATIONS CARRIED OUT BY ROUTINE DIVISION.

Examinations of blood :—

(*a*) For parasites, total	3,904
1. Malaria parasites present in	1,296
2. Trypanosomes present in	10
3. Filaria present in	25
(*b*) Differential and complete counts	569
(*c*) Chemical examinations, total	148
1. Blood urea	119
2. Blood sugar	29
3.Van den Bergh	4
(*d*) Blood grouping	10

Examinations of urine :—

(*a*) General	1,987
(*b*) Schistosome ova found in	133
Cerebro-spinal fluids	41
Miscellaneous (pus, pathological fluid, etc.)	127

POST-MORTEM EXAMINATIONS.

524. Two hundred and twenty-five autopsies were carried out. The following conditions were met with :—

Infectious and Parasitic Diseases.

Anthrax (intestinal)	2
Encephalitis	1
Generalised tuberculosis	11
Malaria	2
Meningitis (pneumococcal)	6
Meningitis (due to virus of lymphogranuloma inguinale)	1
Rabies	2
Septicaemia	8
Tetanus	2
Typhoid fever	3
Yellow fever	1

Diseases of Circulatory System.

Aneurysm	3
Aortitis	4
Coronary disease	2
Endocarditis	3
Pericarditis	5
Valvular disease	3

Diseases of Respiratory System.

Lobar-pneumonia	6
Broncho-pneumonia	11
Pulmonary tuberculosis	9
Infarction of lung	2
Acute bronchitis	1
Atelectasis	1
Empyema	1

Diseases of Digestive System.

Peritonitis (acute)	5
Peritonitis (chronic)	1
Peritonitis (tubercular)	1
Amoebiasis	4
Cirrhosis of liver	5
Volvulus	3
Carcinoma of stomach	1
Liver abscess	2
Primary carcinoma of liver	3
Acute intestinal obstruction	1

Diseases of the Genito-urinary system

Chronic nephritis	6
Pyelo-nephritis	1
Uraemia	4
Pyelitis	1

Death from violence, etc.

Drowning	4
Multiple injuries	12
Hanging (suicidal)	3
Fracture of skull	10
Ruptured spleen	6
Ruptured liver	1
Fractured spine	4
Gunshot wounds	7
Poisoning	3
Intra-cranial haemorrhage	3

Unclassified.

Plant poisoning (Thevetia neriifolia)	1
Yellow atrophy (acute)	3
Yellow atrophy (sub-acute)	2
Toxaemia of pregnancy	1
Ruptured ectopic pregnancy	1
Cause undetermined (due to decomposition, etc.)	10
Avitaminosis (pellagra)	5
Ante-partum haemorrhage	1
Malnutrition and chronic sepsis	1
Anorexia nervosa	1
Leukaemia	2
Oedema of brain (following arterial degeneration)	1
Gas gangrene	2
Birth injuries	2
Pernicious anaemia	1
Prolonged labour (heart failure)	1
Eclampsia	2
Anaemia and sickle-cell trait	3
Anaemia (multiple tape worms)	2
Beri beri	1
Gumma of spleen	1

525. *Histological.*—Eight hundred and forty-three tissues were sectioned from 375 human cases, 23 dogs, 22 rats, 7 oxen, 6 pigs and 2 sheep.

526. The following tumours were met with:—

Carcinoma—Breast	2
Uterus—body	2
Uterus—cervix	3
Ovary	1
Rectum	1
Parotid	1
Eye	1
Liver	6
Stomach	1
Thyroid	1
Squamous—cell carcinoma	12
Sarcoma—spindle cell	4
Sarcoma—round cell	4
Lymphosarcoma	1
Melanotic sarcoma	5
Sarcoma of ovary	1
Myeloma	1
Giant cell tumour	4
Lipoma	1
Fibroma of skin	5
Endothelioma of orbit	1
Haemangioma	1

Cystic adenoma of ovary	1
Mixed salivary gland tumour	1
Mixed parotid tumour	1
Papilloma	1
Epulis	1
Cavernous angioma	1

527. *Plant Poisoning.*—The examination of tissues from cases of suspected poisoning, especially from outstations is, for many reasons, a matter of great difficulty, and a disappointment to both the Pathologist and the Analyst.

In a few cases however, this year the actual fruit or leaf from which the " native medicine " has been made has been sent along with the post-mortem notes and tissues, and the identification of the plant has removed any doubt as to the actual cause of death.

1—AKEE APPLE—BLIGHIA SAPIDA.

Three children aged, 5, 6, and 7 years respectively died within 24 hours of swallowing native medicine given for the treatment of yaws—the medicine had been made from the seeds of the akee apple—and the histological examination of the liver, kidneys, heart and lungs revealed the definite fatty degeneration of the cells and hyperaemia as described by H. Scott in 1916 in cases of akee apple poisoning in Jamaica.

2—ELAEOPHORBIA DRUPIFERA.

A woman aged 18—given a native medicine for belly pains—developed even more severe belly pains with profuse diarrhoea and died within 24 hours—histological examination was impossible due to the tissues being badly decomposed ; but the " medicine " plant was identified as *Elœophorbia drupifera* the juice of whose leaves is used as a fish poison and as a purgative, large doses causing severe griping. (Vide *Plants of the Gold Coast,* Irvine.)

3—THEVETIA NERIIFOLIA.

An African male about 25 was examined a few hours after death—he had been observed eating the seeds of the fruit of *Thevetia neriifolia*

The right side of the heart very dilated, the liver and kidneys congested, stomach contracted, congested and contained 2 oz. of bile. Small intestine—duodenum contained bile and few fragments of kernel. Upper part of intestine empty and dry—lower half contained yellow oily fluid with flakes of mucus—the mucosa was congested—large intestine contained soft faecal matter.

Death due to gastro-intestinal irritation and heart failure, undoubtedly the result of eating the seeds of this poison plant.

(Sgd.) G. ROBINSON,
Senior Pathologist.

(*b*) Annual Report of the Analytical Chemist.

528. The total number of specimens dealt with was 1,215.

529. This total was made up as follows :—

(*a*) *Coroners :*		
Viscera and stomach contents	35	
Medicine	4	
Miscellaneous	3	
		42
(*b*) *Medical and Health Services :*		
Pathological	136	
Water	23	
Miscellaneous	36	
		195
(*c*) *Customs :*		
Brandy	13	
Geneva and Gin	15	
Liqueur	8	
Rum	38	
Whisky	27	
Beer and Stout	80	
Port, Sherry and Vermouth	57	
Tonic and Medicated Wine	71	
Wine (other kinds)	220	
Fabric	22	
Medicine	70	
Milk	88	
Perfumery	37	
Miscellaneous	73	
		819
(*d*) *Police :*		
Illicit Spirit	93	
Medicine	34	
Miscellaneous	12	
		139
(*e*) *Other departments :*		
Miscellaneous	20	
		20
Total		1,215

530. This total is little more than half that of 1937, and is the lowest since 1929–30. This is due to a very large decrease in Customs samples, owing to trade depression, and also to a decrease in the number of specimens of illicit spirit.

531. Bismuth was found in specimens of liver, kidney and spleen from six persons who had died with symptoms of bismuth poisoning, probably due to injection by an unqualified practitioner.

532. The stomach contents of a person who died after allegedly eating the seeds of Thevetia neriifolia gave indication of the presence of parts of this plant. Thevetia is widely distributed in the Colony but its very poisonous nature does not seem to be generally known.

533. Mr. R. W. Clarke, F.I.C., retired on pension on 25th September.

534. Mr. G. R. Howat, B.SC., PH.D., was appointed to fill the vacancy thus created, and arrived in the Colony on 12th October.

(Sgd.) F. R. JOHNSON,
Analytical Chemist.

D. DUFF,
Director of Medical Services.

RETURNS

RETURN A.

Medical, Health and Laboratory Service Staff on the 1st January, 1938.

	Authorised Establishment.	Provision in Estimates.	Vacancies.
Director of Medical Services	1	1 ✓	—
Deputy Director of Medical Service	1	1 ✓	—
Assistant Directors of Medical Service	2	2 ✓	—
Senior Specialists (one surgical and one medical) ...	2	2 ✓	—
Specialist	1	1 ✓	1
Senior Medical Officers	6	6 ✓	—
Medical Officers (Colonial Medical Service)	41	41 ✓	—
Alienist Officer	1	1	—
Medical Officers (Gold Coast)	7	7 ✓	—
Junior Medical Officer (Gold Coast)	3	3 ✓	—
Radiographers	2	2	—
Analytical Chemists	2	2	—
Dispensers' Instructor	1	1	—
Medical Storekeeper	1	1	—
Medical Stock Verifier	1	1	—
Secretary, Gold Coast Hospital	1	1	—
Matron, European Nursing Staff	1	1	—
Senior Nursing Sisters	3	3	—
Nursing Sisters	33	33	—
Office Assistant and Accountant	1	1	—
Chief Dispensers	3	3	—
Chief Clerk	1	1	—
Chief Nurse	1	1	—
First Division Dispensers	8	8	—
Assistant Dispensers' Instructor	1	1	—
Second Division Dispensers and Dispensers-in-Training	91	91	—
Laboratory Attendants	2	2	—
First Division Nurses	7	7	1
Second Division Nurses and Nurse-in-Training	259	259	—
Midwives-in-Training	40	40	—
Midwives at fixed salary	3	3	—
First Division Clerks	3	3	—
Second Division Clerks	26	26	—
Lodge Keepers	2	2	—
Telephone Operators	4	4	—
Lunatic Asylum.			
Head Attendant	1	1	—
Assistant Attendant...	1	1	—
Senior Mental Nurses	4	4	—
Mental Nurses	28	28	—
Matron	1	1	—
Gate-Keeper	1	1	—
Dental Branch.			
Dental Surgeon	1	1	—
African Government Dentist	1	—	—
Health Branch.			
Deputy Director of Health Service	1	1 ✓	—
Senior Health Officers	3	3 ✓	—
Medical Officers of Health	10	10 ✓	—
Women Medical Officers	3	3 ✓	—
Chief Sanitary Superintendent	1	1	—
Sanitary Superintendent, Grade I	6	6	—
Sanitary Superintendent, Grade II	15	15	—
Chief Clerk	1	1	—
Sanitary Inspector and Training Officer	1	1	—
Senior Division Sanitary Inspectors	2	2	
First Division Sanitary Inspectors	5	5	—
Second Division Sanitary Inspectors and Sanitary Inspectors-in-Training	111	111	—
Storekeepers	2	2	—
Disinfector Machanic	1	1	—
Assistant Disinfector Mechanics	4	4	—
Vaccinators	12	12	—
Second Division Clerk	19	19	—
Market Clerks	12	12	—
Senior Village Overseer	1	1	—
Village Overseers	24	24	—
Caretaker	1	1	—
Attendants	3	3	—
Nurse-Midwives	9	9	—
Second Division Dispensers	4	4	—
Second Division Nurses and Nurses-in-Training ...	13	13	—
Health Nursing Sister	1	1	1
Health Visitors	3	3	—
Assistant Health Visitors	4	4	—
Engineering Fitter	1	1	—

RETURN A—*contd.*

	Authorised establishment.	Provision in estimates.	Vacancies.
Laboratory Service.			
Deputy Director of Laboratory Service	1	—	—
Senior Pathologist	1	1	—
Patholigists	2	2	—
Laboratory Assistants	2	2	—
First Division Laboratory Attendant	1	1	—
Laboratory Attendants and Laboratory Attendants-in-Training	11	11	—
Second Division Clerk	1	1	—

RETURN B.

(C) FINANCE.

Estimated Expenditure for the year 1938.

(*a*) Personal Emoluments.

Medical.

	£	s.	d.
Administrative Officers	6,000	0	0
Specialists	2,900	0	0
Senior Medical Officers	5,679	0	0
Medical Officers (European and African)	41,819	0	0
Dental Surgeon	960	0	0
European Nursing Staff	16,631	0	0
African Nursing Staff and Dispensers	41,910	0	0
Clerical Staff	5,093	0	0
Various items, allowances, etc.	16,754	0	0
Estimated Total Personal Emoluments	137,746	0	0
Actual Total Personal Emoluments	131,017	17	2

Health.

	£	s.	d.
Administrative Officers	1,600	0	0
Senior Health Officers and Medical Officers of Health	13,151	0	0
European Sanitary Inspectors	10,761	0	0
African Sanitary Inspectors	16,323	0	0
Various items, allowances, etc.	19,000	0	0
Estimated Total Personal Emoluments	60,835	0	0
Actual Total Personal Emoluments	56,038	15	5

Laboratory Service.

	£	s.	d.
European Staff	4,940	0	0
African Staff	1,666	0	0
Estimated Total Personal Emoluments	6,606	0	0
Actual Total Personal Emoluments	6,292	5	8

(*b*) Other Charges.

Medical.

	£	s.	d.
Passages, transport, etc.	14,000	0	0
Hospital equipment, drugs, medical appliances, surgical instruments, etc.	25,800	0	0
Diets, medical comforts	11,200	0	0
Other items	20,745	0	0
Estimated Total	71,745	0	0
Actual Expenditure	69,856	13	3

RETURN B—*contd.*

Health.

Passages, transport, etc.	8,000	0	0
General Health Votes	40,910	0	0
Scavengers and labourers	44,645	0	0
Estimated Total	93,555	0	0
Actual Expenditure	85,945	8	11

Laboratory Service.

Passages, transport, etc.	612	0	0
General Research Votes	595	0	0
Estimated Total	1,207	0	0
Actual Expenditure	829	10	3

Estimated total expenditure, Medical Department (all branches)	371,694	0	0
Actual total expenditure, Medical Department (all branches)	349,980	10	8
Revenue earned by Medical Branch			
(*a*) Hospital fees	16,350	17	3
(*b*) Sale of drugs in private practice	270	18	10
(*c*) Reimbursements by Railway Department and Takoradi Harbour	2,223	0	0
Total	18,844	16	1

Revenue earned by Health Branch :—			
(*a*) Fines for sanitary offence	6,951	17	11
(*b*) Market and slaughter-house fees	22,823	16	0
(*c*) Poundage fees	344	13	9
(*d*) Births deaths, and burials	742	9	0
(*e*) Reimbursement by Railway Department and Takoradi Harbour	2,645	0	0
(*f*) Reimbursement by Railway Department for conservancy service at Tarkwa.	160	0	0
(*g*) Conservancy fees	15,201	10	2
(*h*) Fees collected at Infant Clinics	2,214	3	2
Total	£51,083	10	0

RETURN C.

POPULATION.

	Census 1921.	Census 1931.			Mid Year. 1938.
		Males.	Females.	Persons.	
A—*Resident Africans.*					
1. Colony	1,171,913	806,466	764,828	1,571,294	1,860,845
2. Ashanti	406,193	298,341	279,737	578,078	702,695
3. Northern Territories ...	530,355	360,260	357,015	717,275	852,792
4. Togoland under British Mandate	187,939	150,464	143,207	293,671	370,327
Total	2,296,400	1,615,531	1,544,787	3,160,318	3,786,659
B—*Resident Non-Africans.*					
1. Colony	1,530	1,839	465	2,304	2,304
2. Ashanti	447	491	133	624	624
3. Northern Territories ...	36	89	18	107	107
4. Togoland under British Mandate	20	33	10	43	43
Total	2,033	2,452	626	3,078	3,078
C—*Maritime.*					
1. Africans	1,157	68	—	68	68
2. Non-Africans	371	104	—	104	104
Total	1,528	172	—	172	172
D—*The Gold Coast and its Dependencies.*					
1. African :—					
(a) Resident	2,108,461	1,465,067	1,401,580	2,866,647	3,416,332
(*b*) Maritime	1,157	68	—	68	68
Total	2,109,618	1,465,135	1,401,580	2,866,715	3,416,400
2. Non-Africans :—					
(*a*) Resident	2,013	2,419	616	3,035	3,035
(*b*) Maritime	371	104	—	104	104
Total	2,384	2,523	616	3,139	3,139
E—*Togoland under British Mandate.*					
1. Africans	187,939	150,464	143,207	293,671	370,327
2. Non-Africans	20	35	10	43	43
Total	187,959	150,497	143,217	293,714	370,370
Grand Total ...	2,299,961	1,618,155	1,545,413	3,163,568	3,789,909

RETURN D.

Return of Diseases and Deaths (In-patients) and Diseases (Out-patients) for the Year 1938.

RETURN D.

RETURN OF DISEASES AND DEATHS (IN-PATIENTS) AND DISEASES (OUT-PATIENTS) FOR THE YEAR 1938.

DISEASES.	IN-PATIENTS.					OUT-PATIENTS.	
	Remaining in hospital on 31st Dec., 1937.	Yearly Total. Admissions.	Yearly Total. Deaths.	Total cases treated.	Remaining in hospital on 31st Dec., 1938.	Male.	Female.
I—*Epidemic, endemic, and infectious diseases.*							
1. Enteric group—							
(*a*) Typhoid fever ...	10	66	8	76	8	9	8
(*b*) Paratyphoid A. ...	—	1	—	1	—	—	—
(*c*) Paratyphoid B. ...	—	4	—	4	—	—	—
(*d*) Type not defined	1	7	1	8	1	4	—
2. Typhus	—	9	—	9	—	2	—
3. Relapsing fever	—	—	—	—	—	—	—
4. Undulant fever	—	—	—	—	—	—	—
5. Malaria—							
(*a*) Tertian	—	25	2	25	—	77	66
(*b*) Quartan	—	15	1	15.	—	43	22
(*c*) Aestivo-autumnal	32	1,617	39	1,649	49	9,002	5,756
(*d*) Cachexia	—	27	3	27	—	116	86
(*e*) Blackwater ...	—	17	1	17	—	6	4
(*f*) Unclassified ...	—	548	14	548	2	6,548	4,969
6. Smallpox	—	2	—	2	—	4	8
7. Measles	—	57	3	57	—	140	80
8. Scarlet fever	—	—	—	—	—	—	—
9. Whooping cough ...	—	5	—	5	—	195	233
10. Diphtheria	—	5	2	5	—	1	—
11. Influenza	—	42	—	42	—	100	40
12. Miliary fever	—	—	—	—	—	—	—
13. Mumps	1	22	—	23	—	50	24
14. Cholera	—	—	—	—	—	—	—
15. Epidemic diarrhœa ...	—	—	—	—	—	—	—
16. Dysentery—							
(*a*) Amœbic	1	217	23	218	7	372	206
(*b*) Bacillary	—	59	14	59	1	57	45
(*c*) Undefined or due to other causes ...	3	54	7	57	—	318	212
17. Plague—							
(*a*) Bubonic	—	—	—	—	—	—	—
(*b*) Pneumonic ...	—	—	—	—	—	—	—
(*c*) Septicæmic ...	—	—	—	—	—	—	—
(*d*) Undefined ...	—	—	—	—	—	—	—
18. Yellow fever	2	12	12	14	—	3	3
19. Spirochætosis icterohæmorrhagica ...	—	—	—	—	—	—	—
20. Leprosy	388	166	19	554	370	437	210
21. Erysipelas	—	6	—	6	1	6	6
22. Acute poliomyelitis ...	—	2	—	2	—	7	7
23. Encephalitis lethargica...	—	4	3	4	1	4	—
24. Epidemic cerebro-spinal fever	—	4	3	4	—	3	—
25. Other epidemic diseases							
(*a*) Rubeola (German measles) ...	—	7	—	7	—	—	
(*b*) Varicella (chicken-pox)	20	260	—	280	13	565	61
(*c*) Kala-azar	—	—	—	—	—	—	—
(*d*) Phlebotomus fever	—	—	—	—	—	—	—
(*e*) Dengue	—	4	—	4	—	11	3
(*f*) Epidemic dropsy	—	—	—	—	—	—	1
(*g*) Yaws	22	282	4	304	13	42,768	32,447
(*h*) Trypanosomiasis ...	236	1,472	151	1,708	331	2,117	1,260
26. Glanders	—	—	—	—	—	—	—
27. Anthrax	—	3	2	3	—	1	—
28. Rabies	—	1	1	1	—	—	—
29. Tetanus	1	64	26	65	2	24	11
30. Mycosis	—	2	—	2	—	4	2
31. Tuberculosis, pulmonary and laryngeal ...	31	422	226	453	44	615	177
32. Tuberculosis of the meninges or central nervous system ...	—	4	1	4	1	2	1
33. Tuberculosis of the intestines or peritoneum ...	1	19	9	20	—	10	6
34. Tuberculosis of the vertebral column ...	3	21	8	24	9	32	18
35. Tuberculosis of bones and joints	3	14	2	17	7	17	8

RETURN D—*contd.*

RETURN OF DISEASES AND DEATHS (IN-PATIENTS) AND DISEASES (OUT-PATIENTS) FOR THE YEAR 1938.

DISEASES.	IN-PATIENTS.					OUT-PATIENTS.	
	Remaining in hospital on 31st Dec., 1937.	Yearly Total.		Total cases treated.	Remaining in hospital on 31st Dec., 1938.	Male.	Female.
		Admissions.	Deaths.				
I—*Epidemic, endemic and infectious diseases* (*contd.*)							
36. Tuberculosis of other organs—							
(*a*) Skin or subcutaneous tissue (lupus) ...	—	—	—	—	—	—	1
(*b*) Bones	3	1	—	4	1	—	—
(*c*) Lymphatic system	4	21	2	25	2	9	7
(*d*) Genito-urinary ...	—	1	—	1	—	—	—
(*e*) Other organs ...	1	5	1	6	—	—	1
37. Tuberculosis disseminated—							
(*a*) Acute	—	1	1	1	—	—	—
(*b*) Chronic	—	1	1	1	—	—	—
38. Syphilis—							
(*a*) Primary	1	25	—	26	—	201	41
(*b*) Secondary... ...	1	25	1	26	1	99	49
(*c*) Tertiary	4	32	5	36	7	113	59
(*d*) Hereditary ...	—	7	1	7	2	28	18
(*e*) Period not indicated	—	18	4	18	—	60	59
39. Soft chancre	2	73	—	75	7	263	3
40. A.—Gonorrhœal and its complications ...	16	321	3	337	8	3,988	533
B.—Gonorrhœal ophthalmia	—	23	—	23	4	67	34
C.—Gonorrhœal arthritis	1	90	2	91	10	238	46
D.—Granuloma venereum	—	2	—	2	1	4	6
41. Septicæmia	1	32	23	33	—	8	7
42. Other infectious diseases	—	—	—	—	—	4	—
II—*General diseases not mentioned above.*							
43. Cancer or other malignant tumours of the buccal cavity ...	—	2	1	2	—	4	5
44. Cancer or other malignant tumours of the stomach or liver ...	1	7	6	8	—	—	—
45. Cancer or other malignant tumours of the peritoneum, intestines, rectum	—	6	4	6	—	3	1
46. Cancer or other malignant tumours of the female genital organs	—	12	3	12	—	—	10
47. Cancer or other malignant tumours of the breast	—	1	—	1	—	—	3
48. Cancer or other malignant tumours of the skin	1	8	1	9	1	17	3
49. Cancer or other malignant tumours of organs not specified	—	25	13	25	2	28	18
50. Tumours non-malignant	4	101	2	105	7	392	187
51. Acute rheumatism ...	—	4	—	4	—	1	—
52. Chronic rheumatism ...	2	78	2	80	3	4,472	2,650
53. Scurvy (including Barlow's disease) ...	—	1	—	1	—	2	5
54. Pellagra	1	14	3	15	—	15	7
55. A—Beri-beri	1	9	3	10	—	5	—
B—Avitaminosis ...	—	19	3	19	—	88	63
56. Rickets	—	—	—	—	—	12	7
57. Diabetes (not including insipidus)	2	21	4	23	2	24	16
58. Anæmia—							
(a) Pernicious ...	—	4	1	4	—	5	5
(*b*) Other anæmias and chlorosis ...	11	91	17	102	2	357	483
59. Diseases of the pituitary body	—	—	—	—	—	2	—

RETURN D—*contd.*

RETURN OF DISEASES AND DEATHS (IN-PATIENTS) AND DISEASES (OUT-PATIENTS) FOR THE YEAR 1938.

DISEASES.	IN-PATIENTS.					OUT-PATIENTS.	
	Remaining in hospital on 31st Dec., 1937.	Yearly Total.		Total cases treated.	Remaining in hospital on 31st Dec., 1937.	Male.	Female.
		Admissions.	Deaths.				
II—*General diseases not mentioned above* (*contd.*)							
60. Diseases of the thyroid gland—							
(*a*) Exophthalmic goitre	1	1	—	2	1	9	12
(*b*) Other diseases of the thyroid gland, myxœdema ...	—	9	1	9	—	21	57
61. Diseases of the parathyroid glands ...	—	2	—	2	—	—	—
62. Diseases of the thymus	—	—	—	—	—	—	—
63. Diseases of the suprarenal glands	—	—	—	—	—	1	—
64. Disease of the spleen ...	—	13	2	13	—	79	49
65. Leukæmia—							
(*a*) Leukæmia... ...	—	3	—	3	—	1	1
(*b*) Hodgkin's disease	—	4	2	4	1	5	2
66. Alcoholism	—	12	—	12	—	16	2
67. Chronic poisoning by mineral substances (lead, mercury, etc.)	—	3	—	3	—	—	—
68. Chronic poisoning by organic substances (morphia, cocaine, etc.)	—	1	—	1	—	—	—
69. Other general diseases—							
(*a*) Auto-intoxication	—	—	—	—	—	2	—
(*b*) Purpura hæmorrhagica	—	—	—	—	—	—	—
(*c*) Hæmophilia ...	—	—	—	—	—	—	—
(*d*) Diabetes insipidus	—	1	—	1	—	1	1
III—*Affections of the nervous system and organs of the senses.*							
70. Encephalitis (not including encephalitis lethargica)	—	7	1	7	1	3	3
71. Meningitis (not including tuberculous meningitis or cerebro-spinal meningitis)	—	29	22	29	—	9	3
72. Locomotor ataxia ...	—	3	—	3	—	1	—
73. Other affections of the spinal cord	1	8	3	9	—	9	—
74. Apoplexy—							
(a) Hæmorrhage ...	—	36	20	36	1	18	1
(*b*) Embolism ...	—	—	—	—	—	—	1
(*c*) Thrombosis ...	—	8	4	8	—	6	3
75. Paralysis—							
(*a*) Hemiplegia ...	5	53	9	58	3	95	27
(*b*) Other paralyses ...	6	48	6	54	3	108	52
76. General paralysis of the insane	—	3	—	3	2	5	2
77. Other forms of mental alienation	438	160	1	598	474	96	18
78. Epilepsy	21	48	4	69	23	98	52
79. Eclampsia, convulsions (non-puerperal) 5 years or over	—	1	—	1	—	—	—
80. Infantile convulsions ...	1	23	7	24	1	34	32
81. Chorea	—	1	—	1	—	1	—
82. A—Hysteria	1	20	1	21	—	10	13
B—Neuritis	1	27	—	28	—	258	94
C—Neurasthenia ...	1	28	—	29	1	109	34
83. Cerebral softening ...	—	4	3	4	—	—	—
84. Other affections of the nervous system, such as paralysis agitans ...	1	18	3	19	5	47	5
85. Affections of the organs of vision—							
(*a*) Diseases of the eye	7	103	—	110	2	710	400
(*b*) Conjunctivitis ...	7	232	—	239	6	5,050	4,610
(*c*) Trachoma ...	—	39	—	39	2	42	48
(*d*) Tumours of the eye	1	6	—	7	—	43	17
(*e*) Other affections of the eye	35	668	—	703	12	1,227	1,022
86. Affections of the ear or mastoid sinus ...	2	108	2	110	6	2,158	1,283

RETURN D—*contd.*

RETURN OF DISEASES AND DEATHS (IN-PATIENTS) AND DISEASES (OUT-PATIENTS) FOR THE YEAR 1938.

DISEASES.	IN-PATIENTS.					OUT-PATIENTS.	
	Remaining in hospital on 31st Dec., 1937.	Yearly Total.		Total cases treated.	Remaining in hospital on 31st Dec., 1938.	Male.	Female.
		Admissions.	Deaths.				
IV—*Affections of the circulatory system.*							
87. Pericarditis	—	5	3	5	1	8	5
88. Acute endocarditis or myocarditis	1	15	7	16	—	11	9
89. Angina pectoris ...	1	6	—	7	—	8	3
90. Other diseases of the heart	1	16	3	17	—	30	21
A—Valvular	—	8	2	8	—	24	11
(*a*) Mitral	3	41	12	44	1	67	37
(*b*) Aortic	—	21	3	21	1	33	7
(*c*) Tricuspid	—	—	—	—	—	1	—
(*d*) Pulmonary ...	1	2	1	3	—	—	1
B—Myocarditis ...	7	102	55	109	4	108	57
91. Diseases of the arteries—							
(*a*) Aneurism	—	5	1	5	—	11	1
(*b*) Arterio-sclerosis ...	—	10	1	10	1	18	6
(*c*) Other diseases ...	—	8	1	8	—	33	13
92. Embolism or thrombosis non-cerebral	—	4	—	4	—	1	2
93. Diseases of the veins—							
(*a*) Hæmorrhoids ...	3	79	—	82	5	322	74
(*b*) Varicose veins ...	—	6	—	6	—	46	7
(*c*) Phlebitis	—	4	—	4	—	3	1
94. Diseases of the lymphatic system—							
(*a*) Lymphangitis ...	2	23	—	25	1	90	23
(*b*) Lymphadenitis, bubo (non-specific)	12	225	—	237	11	610	139
95. Hæmorrhage of undetermined cause	—	22	4	22	1	43	14
96. Other affections of the circulatory system ...	—	19	3	19	—	18	16
V—*Affections of the respiratory system.*							
97. Diseases of the nasal passages—							
(*a*) Adenoids	—	1	—	1	—	12	4
(*b*) Polypus	—	4	—	4	—	20	10
(*c*) Rhinitis	—	12	—	12	—	81	52
(*d*) Coryza	—	55	—	55	—	2,331	1,048
(*e*) Ill-defined ...	—	24	—	24	—	51	18
98. Affections of the larynx—							
(*a*) Laryngitis ...	—	34	3	34	1	104	65
99. Bronchitis—							
(*a*) Acute	2	270	6	272	9	5,391	3,099
(*b*) Chronic	2	89	3	91	4	1,912	1,471
100. Broncho-pneumonia ...	16	232	75	248	8	256	128
101. Pneumonia—							
(*a*) Lobar	24	340	100	364	11	199	82
(*b*) Unclassified ...	2	67	7	69	5	129	48
102. Pleurisy, empyema ...	7	119	10	126	6	349	112
103. Congestion of the lungs	1	5	1	6	—	4	4
104. Gangrene of the lungs ...	—	2	2	2	—	—	—
105. Asthma	1	86	1	87	2	213	125
106. Pulmonary emphysema	—	1	—	1	—	2	—
107. Other affections of the lungs—	—	3	2	3	—	4	2
(*a*) Pulmonary spirochætosis ...	—	—	—	—	—	—	—
VI—*Diseases of the digestive system.*							
108. A—Diseases of teeth or gums	—	—	—	—	—	62	65
Caries, pyorrhœa, etc. ...	2	94	1	96	—	2,441	1,420
B—Other affections of the mouth	—	4	—	4	—	29	25
(*a*) Stomatitis ...	2	34	4	36	1	699	526
(*b*) Glossitis, etc. ...	—	8	—	8	—	156	106

RETURN D—*contd.*

RETURN OF DISEASES AND DEATHS (IN-PATIENTS) AND DISEASES (OUT-PATIENTS) FOR THE YEAR 1938.

DISEASES.	IN-PATIENTS.					OUT-PATIENTS.	
	Remaining in hospital on 31st Dec., 1937.	Yearly Total.		Total cases treated.	Remaining in hospital on 31st Dec., 1938.	Male.	Female.
		Admissions.	Deaths.				
VI.—*Diseases of the digestive system.* (*contd.*)							
109. Affections of the pharynx or tonsils—							
(*a*) Tonsillitis	2	93	—	95	2	431	303
(*b*) Pharyngitis ...	2	29	—	31	2	324	150
110. Affections of the œsophagus	—	4	—	4	—	6	2
111. A—Ulcer of the stomach	—	10	1	10	—	7	3
B—Ulcer of the duodenum	—	10	2	10	—	12	1
112. Other affections of the stomach—							
(*a*) Gastritis	—	57	1	57	1	361	190
(*b*) Dyspepsia, etc. ...	—	46	—	46	—	1,220	900
113 and 114. Diarrhœa and enteritis—							
A.—Under two years ...	3	60	13	63	4	1,090	888
B.—Two years and over	—	367	17	367	2	1,930	982
(*a*) Colitis	2	33	1	35	—	195	83
(*b*) Ulceration ...	—	4	1	4	—	2	—
(*c*) Other diseases ...	—	27	1	27	2	109	59
114*a*. Sprue	—	—	—	—	—	—	—
115. Ankylostomiasis ...	9	269	19	278	10	567	311
116. Diseases due to intestinal parasites—							
(*a*) Cestoda (tænia) ...	4	122	—	126	1	1,594	610
(*b*) Tremotoda (flukes)	—	—	—	—	—	2	2
(*c*) Nematoda (other than ankylostoma)	—	—	—	—	—	2	2
(i) Ascaris ...	1	185	8	186	2	916	677
(ii) Trichocephalus dispar ...	—	—	—	—	—	1	—
(iii) Trichina ...	—	—	—	—	—	2	2
(iv) Dracunculus ...	11	254	—	265	7	1,048	537
(v) Strongylus ...	—	3	—	3	—	19	6
(vi) Oxyuris ...	—	3	—	3	—	51	29
(*d*) Coccidia	—	—	—	—	—	—	—
(*e*) Other parasites ...	—	8	1	8	—	37	12
(*f*) Unclassified ...	—	1	—	1	—	46	25
117. Appendicitis	1	49	—	50	2	27	8
118. Hernia	14	448	17	462	25	631	34
119. A—Affections of the anus, fistula, etc. ...	9	117	1	126	6	167	93
B—Other affections of the intestines ...	1	20	6	21	1	6	7
(*a*) Enteroptosis ...	—	6	1	6	—	3	1
(*b*) Constipation ...	3	113	—	116	5	8,878	3,287
120. Acute yellow atrophy of the liver	—	—	—	—	—	—	—
121. Hydatid of the liver ...	—	—	—	—	—	—	—
122. Cirrhosis of the liver—							
(*a*) Alcoholic	—	—	—	—	—	1	—
(*b*) Other forms ...	1	41	28	42	—	37	5
123. Biliary calculus	—	—	—	—	—	—	—
124. Other affections of the liver—							
(*a*) Abscess	4	40	9	44	2	15	2
(*b*) Hepatitis	5	72	5	77	3	97	33
(*c*) Cholecystitis ...	1	11	—	12	—	28	24
(*d*) Jaundice	4	70	—	74	2	111	55
125. Diseases of the pancreas	—	—	—	—	—	20	5
126. Peritonitis (of unknown cause)	—	38	18	38	1	5	2
127. Other affections of the digestive system ...	—	54	17	54	2	131	60
VII.—*Diseases of the genito-urinary system* (*non-venereal*)							
128. Acute nephritis	3	102	27	105	5	90	55
129. Chronic nephritis ...	11	93	39	104	10	117	60

RETURN D—*contd.*

RETURN OF DISEASES AND DEATHS (IN-PATIENTS) AND DISEASES (OUT-PATIENTS) FOR THE YEAR 1938.

DISEASES.	IN-PATIENTS.					OUT-PATIENTS.	
	Remaining in hospital on 31st Dec., 1937.	Yearly Total.		Total cases treated.	Remaining in hospital on 31st Dec., 1937.	Male.	Female.
		Admissions.	Deaths.				
VII—*Diseases of the geneto-urinary system (non-venereal)—(contd.)*							
130. A—Chyluria	—	—	—	—	—	—	—
B—Schistosomiasis ...	8	177	12	185	10	621	160
131. Other affections of the kidneys—							
(*a*) Pyelitis, etc. ...	3	50	13	53	3	37	31
132. Urinary calculus ...	—	8	—	8	—	9	3
133. Diseases of the bladder	—	—	—	—	—	2	1
(*a*) Cystitis	3	99	5	102	5	326	294
134. Diseases of the urethra—							
(*a*) Stricture	16	261	8	277	15	466	—
(*b*) Other	6	79	2	85	4	296	18
135. Diseases of the prostate—							
(*a*) Hypertrophy ...	2	4	—	6	—	5	—
(*a*) Prostatitis ...	—	21	—	21	1	161	—
136. Diseases (non-venereal) of the genital organs of man—	—	—	—	—	—	4	—
(*a*) Epididymitis ...	4	57	—	61	2	160	—
(*b*) Orchitis	2	90	1	92	8	299	—
(*c*) Hydrocele ...	6	115	—	121	11	289	—
(*d*) Ulcer of penis ...	4	132	—	136	8	433	—
(*e*) Phimosis and paraphimosis ...	7	214	—	221	2	287	—
137. Cysts or other non-malignant tumours of the ovaries	3	31	—	34	2	—	25
138. Salpingitis	4	129	2	133	7	—	200
(*a*) Abscess of the pelvis	1	13	—	14	3	—	185
139. Uterine tumours (non-malignant)	6	64	—	70	3	—	129
140. Uterine hæmorrhage (non-puerperal) ...	—	10	4	10	—	—	67
141. A—Metritis	—	102	1	102	4	—	365
B—Other affections of the female genital organs—	4	66	3	70	5	—	313
(*a*) Displacements of uterus	—	28	1	28	2	—	116
(*b*) Amenorrhœa ...	—	11	—	11	1	—	344
(*c*) Dysmenorrhœa ...	—	44	—	44	1	—	903
(*d*) Leucorrhœa ...	1	6	—	7	—	—	155
142. Diseases of the breast (non-puerperal)—							
(*a*) Mastitis	1	20	—	21	4	5	147
(*b*) Abscess of breast...	—	8	—	8	2	1	53
VIII—*Puerperal State.*							
143. A—Normal labour ...	13	785	—	798	14	—	587
B—Accidents of pregnancy—							
(*a*) Abortion	6	263	4	269	12	—	289
(*b*) Ectopic gestation	1	27	3	28	—	—	9
(*c*) Other accidents of pregnancy ...	4	119	26	123	4	—	103
C—Maternal welfare (ante-natal) ...	23	668	—	691	9	—	18,914
D—Post-natal examinations—mothers and infant	1	95	—	96	2	1,268	2,193
144. Puerperal hæmorrhage	—	14	3	14	—	—	11
145. Other accidents of parturition	14	403	87	417	13	—	20
146. Puerperal septicæmia ...	1	27	7	28	1	—	19
147. Phlegmasia dolens ...	—	2	—	2	—	—	—
148. Puerperal eclampsia ...	—	12	5	12	—	—	2
149. Sequelæ of labour ...	3	26	4	29	—	—	37
150. Puerperal affections of the breast	—	3	—	3	—	—	5

RETURN D—*contd.*

RETURN OF DISEASES AND DEATHS (IN-PATIENTS) AND DISEASES (OUT-PATIENTS) FOR THE YEAR 1938.

DISEASES.	IN-PATIENTS.					OUT-PATIENTS.	
	Remaining in hospital on 31st Dec., 1937.	Yearly Total.		Total cases treated.	Remaining in hospital on 31st Dec., 1938.	Male.	Female.
		Admissions.	Deaths.				
IX—*Affections of the skin and cellular tissues.*							
151. Gangrene	—	39	8	39	7	63	22
152. Boil—	1	124	—	125	5	1,119	346
(*a*) Carbuncle ...	—	52	—	52	3	148	71
153. Abscess—	22	446	13	468	22	942	300
(*a*) Whitlow	4	155	—	159	11	486	156
(*b*) Cellulitis	19	388	13	407	21	852	275
154. A—Tinea	1	8	—	9	—	1,418	883
B—Scabies	—	17	—	17	1	3,203	2,421
155. Other diseases of the skin	2	32	—	34	2	1,487	1,156
(*a*) Erythema ...	—	5	—	5	—	257	266
(*b*) Urticaria	—	9	—	9	—	301	171
(*c*) Eczema	2	32	—	34	1	890	552
(*d*) Herpes	—	15	—	15	—	119	46
(*e*) Psoriasis	—	1	—	1	—	45	34
(*f*) Elephantiasis ...	4	39	1	43	6	101	33
(*g*) Myiasis	—	1	—	1	—	5	2
(*h*) Chiggers	1	2	—	3	—	2	—
(*i*) Cutaneous leishmaniasis	—	—	—	—	—	2	—
(*j*) Ulcers	85	1,057	23	1,142	124	9,766	5,013
X—*Diseases of bones and organs of locomotion* (*other than tuberculous*).							
156. Diseases of bones—							
(*a*) Osteitis	3	39	—	42	—	622	467
(*b*) Osteo-myelitis ...	11	104	7	115	17	98	76
157. Diseases of joints—							
(*a*) Arthritis	11	187	4	198	10	1,872	1,040
(*b*) Synovitis	5	140	—	145	5	424	160
158. Other diseases of bones or organs of locomotion	3	19	—	22	—	144	67
(*a*) Fibrositis	4	122	—	126	3	3,000	1,196
XI—*Malformations.*							
159. Malformations—							
(*a*) Hydrocephalus ...	—	1	—	1	—	6	6
(*b*) Hypospadias ...	—	—	—	—	—	1	—
(*c*) Spina bifida, etc.	—	11	1	11	—	10	12
XII—*Diseases of infancy.*							
160. Congenital debility ...	—	18	5	18	—	117	86
161. Premature birth ...	1	135	44	136	2	43	55
162. Other affections of infancy	12	110	23	122	6	505	467
163. Infant neglect (infants of three months or over)	2	25	6	27	—	73	69
(*a*) New born infants	9	754	49	763	19	100	99
XIII—*Affections of old age.*							
164. Senility—	1	10	3	11	—	54	39
Senile dementia ...	7	7	—	14	12	3	4

RETURN D—*contd.*

RETURN OF DISEASES AND DEATHS (IN-PATIENTS) AND DISEASES (OUT-PATIENTS) FOR THE YEAR 1938.

DISEASES.	IN-PATIENTS.					OUT-PATIENTS.	
	Remaining in hospital on 31st Dec., 1937.	Yearly Total.		Total cases treated.	Remaining in hospital on 31st Dec., 1938.	Male.	Female.
		Admissions.	Deaths.				
XIV—*Affections produced by external causes.*							
165. Suicide by poisoning ...	—	2	2	2	—	—	—
166. Corrosive poisoning (intentional)	—	5	3	5	—	—	—
167. Suicide by gas poisoning	—	—	—	—	—	—	—
168. Suicide by hanging or strangulation	—	—	—	—	—	—	—
169. Suicide by drowning ...	—	—	—	—	—	—	—
170. Suicide by firearms ...	—	—	—	—	—	—	—
171. Suicide by cutting or stabbing instruments	—	—	—	—	—	—	—
172. Suicide by jumping from a height	—	—	—	—	—	—	—
173. Suicide by crushing ...	—	—	—	—	—	—	—
174. Other suicides	—	—	—	—	—	—	—
(*a*) Attempted suicide	3	16	—	19	—	4	—
175. Food poisoning— ...	—	1	—	1	—	—	—
(*a*) Botulism	—	4	—	4	—	1	1
176. Attacks of poisonous animals—							
(*a*) Snake bite ...	—	53	4	53	—	89	17
(*b*) Insect bite or sting	—	33	—	33	—	237	69
177. Other accidental poisonings	1	25	3	26	1	13	6
178. Burns (by fire)	2	78	11	80	2	237	125
179. Burns (other than by fire)	3	62	4	65	3	155	88
180. Suffocation (accidental)	—	—	—	—	—	—	—
181. Poisoning by gas (accidental)	—	8	—	8	—	—	1
182. Drowning (accidental) ...	—	—	—	—	—	—	—
183. Wounds (by firearms, war excepted) ...	10	167	20	177	11	69	7
184. Wounds (by cutting or stabbing instruments)	24	860	19	884	28	4,288	689
185. Wounds (by fall) ...	4	232	4	236	13	1,877	427
186. Wounds (in mines or quarries)	5	169	—	174	1	5,101	1
187. Wounds (by machinery)	2	79	5	81	1	551	23
188. Wounds (crushing, e.g. railway accidents, etc.)	4	187	20	191	6	301	40
189. Injuries inflicted by animals, bites, kicks, etc.	3	85	1	88	4	516	157
190. Wounds inflicted on active service ...	—	—	—	—	—	—	—
191. Executions of civilians by belligerents ...	—	—	—	—	—	—	—
192. A—Over-fatigue ...	—	2	—	2	—	5	6
B—Hunger or thirst ...	1	49	22	50	2	5	2
193. Exposure to cold frost bite, etc.	—	—	—	—	—	—	—
194. Exposure to heat—							
(*a*) Heatstroke ...	—	2	—	2	—	—	—
(*b*) Sunstroke ...	—	1	—	1	—	4	1
195. Lightning stroke ...	—	3	2	3	—	—	—
196. Electric shock	—	2	—	2	—	—	1
197. Murder by firearms ...	—	—	—	—	—	—	—
198. Murder by cutting or stabbing instruments	—	—	—	—	—	—	—
199. Murder by other means	—	—	—	—	—	—	—
200. Infanticide (murder of an infant under one year)	—	—	—	—	—	—	—
201. A—Dislocation ...	7	61	1	68	—	71	35
B—Sprain	1	129	—	130	—	903	112
C—Fracture	58	506	45	564	48	259	61
202. Other external injuries	13	536	11	549	30	2,270	516
203. Deaths by violence of unknown cause ...	—	1	1	1	—	—	—

RETURN D—*contd.*

RETURN OF DISEASES AND DEATHS (IN-PATIENTS) AND DISEASES (OUT-PATIENTS) FOR THE YEAR 1938.

DISEASES.	IN-PATIENTS.					OUT-PATIENTS.	
	Remaining in hospital on 31st Dec., 1937.	Yearly Total.		Total cases treated.	Remaining in hospital on 31st Dec., 1938.	Male.	Female.
		Admissions.	Deaths.				
XV—*Ill-defined diseases.*							
204. Sudden death (cause unknown	—	—	—	—	—	—	—
205. A—Diseases not already specified or ill-defined—							
(*a*) Ascites	11	90	14	101	9	75	29
(*b*) Œdema	1	26	4	27	—	78	41
(*c*) Asthenia	4	96	16	100	4	552	304
(*d*) Shock	2	35	5	37	—	4	4
(*e*) Hyperpyrexia ...	—	2	—	2	—	13	4
(*f*) Neuralgia and headache (undiagnosed) ...	—	23	—	23	—	940	530
(*g*) Other diseases ...	6	120	7	126	1	634	376
B—Malingering ...	—	20	—	20	—	94	2
C—Observation cases ...	1	236	—	237	1	619	266
D—Pyrexia of uncertain origin	6	117	3	123	2	340	156
XVI—*Diseases, the total of which have not caused ten deaths.*	1	14	—	15	—	15	9
Total	2,052	25,867	1,945	27,919	2,236	174,164	121,907

Major operations ... ... 1,678. Minor operations ... ... 6,602.

174164
121907
296071
27919
323990

RETURN E.

	In-patients.					Out-patients.	
	Remaining in hospital on 31st Dec., 1937.	Yearly Total.		Total cases treated.	Remaining in hospital on 31st Dec., 1938.	Male.	Female.
		Admissions.	Deaths.				
Medical	1,879	24,500	1,815	26,379	2,062	161,599	95,890
Health Branch :—							
Welfare centres	38	1,084	93	1,122	36	12,552	26,014
Contagious diseases hospitals	135	283	37	418	138	12	4
Total	2,052	25,867	1,945	27,919	2,236	174,163	121,908

RETURN F.

Analysis of more important Conditions dealt with in the Out-patients Department of the Child Welfare Centres during 1938.

Diseases.	Male.	Female.	Total.	Ratio to disease due to all causes.
Malaria	4,212	4,227	8,439	21·88
Yaws	2,054	1,658	3,712	9·63
Diseases of respiratory system	293	329	622	1·62
Parasitic skin diseases	312	341	653	1·69
Constipation	412	463	875	2·27
Diarrhœa and enteritis	464	417	891	2·31
Diseases of teeth, gums and mouth	317	327	644	1·67
Diseases of infancy	505	500	1,005	2·61
Intestinal parasites	181	212	393	1·02
Diseases of the eye	359	266	625	1·62
Whooping cough	116	127	243	0·63
Ulcers	103	103	206	0·53
Dysentery	41	52	93	0·24
Injuries (external causes)	13	9	22	0·06
Diseases of lymphatic system	14	10	24	0·06
Measles	17	15	32	0·08
Other conditions	3,129	16,958	20,087	52·08
Total	12,552	26,014	38,566	—

APPENDICES.

APPENDIX I.

GOVERNMENT HOSPITAL BED ACCOMMODATION AND DISPENSARIES, GOLD COAST COLONY, ASHANTI, NORTHERN TERRITORIES AND BRITISH SPHERE OF TOGOLAND, MEDICAL BRANCH.

COLONY.	HOSPITAL.		EUROPEAN.				AFRICAN.				Dispensaries.	Medical staff (medical officers and women medical officers).	REMARKS.
	European.	African.	Total beds at present.		Number of beds possible.		Total beds at present.		Number of beds possible.				
			M.	F.	M.	F.	M.	F.	M.	F.			
EASTERN PROVINCE.													
Accra	1	1	15	3	15	3	171+12 cots	48+12 cots	171+12 cots	48+12 cots	2	6 (M.O.s)	
Accra, Cantonments	—	1	—	—	—	—	6	—	6	—	1	1 (M.O.)	
Accra, Maternity	—	1	—	—	—	—	—	45+26 cots	—	34+20 cots	—	2 (W.M.O.s)	
Accra, P.M.L.H.	—	1	—	—	—	—	—	3+27 cots	—	3+27 cots	1	1 (W.M.O.)	A children's hospital and welfare centre.
Accra, Christiansborg	—	—	—	—	—	—	—	—	—	—	1	—	Welfare centre—closed.
Ada	—	1	—	—	—	—	11	6	11	6	1	1 (M.O.)	
Akuse	—	1	—	—	—	—	12	9	12	9	1	1 (M.O.)	
Keta	—	1	—	—	—	—	22	10	22	10	1	1 (M.O.)	
Kibi	—	1	—	—	—	—	16	4	16	4	1	1 (M.O.)	
Koforidua	—	1	—	—	—	—	17	8	12	6	1	1 (M.O.)	
Koforidua	—	—	—	—	—	—	—	—	—	—	1	1 (W.M.O.)	Welfare centre.
Mpraeso	—	1	—	—	—	—	8	6+1 cot	8	6+1 cot	1	1 (M.O.)	
Nsawam	—	1	—	—	—	—	9	3	9	3	1	1 (M.O.)	
Total	1	11	15	3	15	3	272+12	142+66	267+12	129+60	13	18	

APPENDIX I—*contd.*

GOVERNMENT HOSPITAL BED ACCOMMODATION AND DISPENSARIES, GOLD COAST COLONY, ASHANTI, NORTHERN TERRITORIES AND BRITISH SPHERE OF TOGOLAND, MEDICAL BRANCH.

COLONY.	HOSPITAL.		EUROPEAN.				AFRICAN.				Dispen-saries.	Medical staff (medical officers and women medical officers).	REMARKS.
	Euro-pean.	Afri-can.	Total beds at present.		Number of beds possible.		Total beds at present.		Number of beds possible.				
			M.	F.	M.	F.	M.	F.	M.	F.			
CENTRAL PROVINCE.													
Cape Coast	—	1	—	—	—	—	19	18	19	18	1	1 (M.O.)	
Cape Coast	—	—	—	—	—	—	—	—	—	4+6 cots	1	1 Red Cross sister.	Red Cross Welfare Centre.
Dunkwa	—	1	—	—	—	—	19	4	21	4	1	1 (M.O.)	
Elmina	—	—	—	—	—	—	—	—	—	—	1	—	Visited from Cape Coast.
Oda	—	1	—	—	—	—	14+1	4+1 cot	14+1	4+1 cot	1	1 (M.O.)	
Saltpond	—	1	—	—	—	—	8	6	8	8	1	1 (M.O.)	
Winneba	1	1	4	1	4	1	28	22+8 cots	28	22+8 cots	1	1 (M.O.)	
Total	1	5	4	1	4	1	88+1	54+9	90+1	60+15	7	6	

APPENDIX I—*contd.*

Government Hospital Bed Accommodation and Dispensaries, Gold Coast Colony, Ashanti, Northern Territories and British Sphere of Togoland, Medical Branch.

Colony.	Hospital.		European.				African.				Dispensaries.	Medical staff (medical officers and women medical officers).	Remarks.
	European.	African.	Total beds at present.		Number of beds possible.		Total beds at present.		Number of beds possible.				
			M.	F.	M.	F.	M.	F.	M.	F.			
Western Province.													
Axim	1	1	3	—	6	—	12	4	12	4	1	1 (M.O.)	
Chama	—	—	—	—	—	—	—	—	—	—	—	1 Red Cross sister.	Red Cross Welfare Centre.
Sekondi	—	1	—	—	—	—	47+2 cots	9+5 cots	47+2 cots	9+5 cots	1	2 (M.O.s)	
Sekondi	—	—	—	—	—	—	—	—	—	—	1	1 Red Cross sister.	Red Cross Welfare Centre.
Takoradi	1	—	20	4	20	4	—	—	—	—	1	1 (M.O.)	
Tarkwa	—	1	—	—	—	—	26	6	26	6	1	1 (M.O.)	
Wiaso	—	1	—	—	—	—	6	2	12+4 cots	4	1	—	Visited occasionally by M.O.
Total	2	4	23	4	26	4	91+2	21+5	97+6	23+ 5	6	7	

APPENDIX I—*contd.*

GOVERNMENT HOSPITAL BED ACCOMMODATION AND DISPENSARIES, GOLD COAST COLONY, ASHANTI, NORTHERN TERRITORIES AND BRITISH SPHERE OF TOGOLAND, MEDICAL BRANCH.

ASHANTI.	HOSPITAS.		EUROPEAN.				AFRICAN.				Dispen-saries.	Medical staff (medical officers and women medical officers).	REMARKS.
	Euro-pean.	Afri-can.	Total beds at present.		Number of beds possible.		Total beds at present.		Number of beds possible.				
			M.	F.	M.	F.	M.	F.	M.	F.			
Bekwai	—	1	—	—	—	—	8	4	8	4	1	1 (M.O.)	
Kumasi	1	1	10	2	10	2	129	29+6 cots	129	29+6 cots	1	3 (M.O.s)	
Kumasi	—	1	—	—	—	—	—	12+12 cots	—	12+12 cots	1	1 (W.M.O.)	Welfare Centre.
Sunyani	—	1	—	—	—	—	16	4+2 cots	16	4+2 cots	1	1 (M.O.)	
Total	1	4	10	2	10	2	153	49+20	153	49+20	4	6	

APPENDIX I—*contd.*

GOVERNMENT HOSPITAL BED ACCOMMODATION AND DISPENSARIES, GOLD COAST COLONY, ASHANTI, NORTHERN TERRITORIES AND BRITISH SPHERE OF TOGOLAND, MEDICAL BRANCH.

NORTHERN TERRITORIES.	HOSPITAL.		EUROPEAN.				AFRICAN.				Dispensaries.	Medical staff (medical officers and women medical officers).	REMARKS.
	European.	African.	Total beds at present.		Number of beds possible.		Total beds at present.		Number of beds possible.				
			M.	F.	M.	F.	M.	F.	M.	F.			
Bawku	—	1	—	—	—	—	10	4	10	4	1	1 (M.O.)	
Lawra	—	1	—	—	—	—	13	4	13	4	1	1 (M.O.)	
Navrongo	—	1	—	—	—	—	14	4	14	4	1	1 (M.O.)	
Salaga	—	1	—	—	—	—	8	4	8	4	1	1 (M.O.)	
Tamale	1	1	5	2	6	2	40	20+8 cots	40	20+8 cots	1	2 (M.O.s)	
Wa	—	1	—	—	—	—	13	4	13	5	1	1 (M.O.)	
Zuarungu	—	—	—	—	—	—	—	—	—	—	1	—	Visited from Navrongo.
Gambaga	—	—	—	—	—	—	—	—	—	—	1	—	Visited from Bawku.
Total	1	6	5	2	6	2	98	40+8	98	41+8	8	7	

APPENDIX I—*contd.*

GOVERNMENT HOSPITAL BED ACCOMMODATION AND DISPENSARIES, GOLD COAST COLONY, ASHANTI, NORTHERN TERRITORIES AND BRITISH SPHERE OF TOGOLAND, MEDICAL BRANCH.

BRITISH SPHERE OF TOGOLAND.	HOSPITALS.		EUROPEAN.				AFRICAN.				Dispensaries.	Medical staff (medical officers and women medical officers).	REMARKS.
	European.	African.	Total beds at present.		Number of beds possible.		Total beds at present.		Number of beds possible.				
			M.	F.	M.	F.	M.	F.	M.	F.			
Ho	—	1	—	—	—	—	12	5	14	5	1	1 (M.O.)	
Kete Krachi	—	—	—	—	—	—	—	—	—	—	1	—	Visited occasionally by M.O.
Yendi	—	1	—	—	—	—	12	12	12	12	1	1 (M.O.)	
Total	—	2	—	—	—	—	24	17	26	17	3	2	
Grand Total	6	32	57	12	61	12	726+15	323+108	731+19	319+108	41	46	

APPENDIX I—*contd.*

GOVERNMENT HOSPITAL BED ACCOMMODATION AND DISPENSARIES, GOLD COAST COLONY, ASHANTI, NORTHERN TERRITORIES AND BRITISH SPHERE OF TOGOLAND, MEDICAL BRANCH.

COLONY. CONTAGIOUS DISEASES HOSPITAL.	HOSPITAL.		EUROPEAN.				AFRICAN.				Dispensaries.	Medical staff (medical officers and women medical officers).	REMARKS.
	European.	African.	Total beds at present.		Number of beds possible.		Total beds at present.		Number of beds possible.				
			M.	F.	M.	F.	M.	F.	M.	F.			
Accra (Labadi)	1	1	—	—	4	—	43	26	59	82	—	1 (M.O.H.)	Visiting.
Ada	—	1	—	—	—	—	—	—	5	3	—	1 (M.O.H.)	Visiting.
Cape Coast	—	1	—	—	—	—	5	4	13	13	—	1 (M.O.H.)	Visiting.
Keta	—	1	—	—	—	—	—	—	4	2	—	1 (M.O.H.)	Visiting.
Kumasi	—	1	—	—	—	—	55	8	60	8	—	1 (M.O.H.)	Visiting.
Saltpond	—	1	—	—	—	—	—	—	2	2	—	1 (M.O.)	Visiting.
Sekondi	—	1	—	—	—	—	4	3	24	24	—	1 (M.O.H.)	Visiting.
Tarkwa	—	1	—	—	—	—	—	—	6	—	—	1 (M.O.H.)	Visiting.
Winneba	—	1	—	—	—	—	2	2	6	6	—	1 (M.O.)	Visiting.
Total	1	9	—	—	4	—	109	43	179	140	—	9	

(4) (41)

(41)

APPENDIX II.

Unusual cases of malaria seen at Takoradi European Hospital.

(1) *Blackwater fever* apparently started by an extra dose of quinine and then cured by quinine.

Mr. E. who took quinine regularly every day, developed fever on 16th September, 1938. He continued on duty taking quinine gr. v daily. On 19th September, 1938 he reported sick and was admitted to hospital. Numerous subtertian parasites were found in his blood. He was given quinine gr. x by mouth that evening. About 3 a.m. next morning (20th September, 1938) he passed stout coloured urine. He was put on alkalies and atebrin tab. i tds. On account of his temperature and the parasites in his blood. He only vomited once. His temperature continued to rise. After the first 24 hours he passed urine freely but it did not clear until 54 hours after the onset of blackwater, i.e. on 22nd September, 1938. That afternoon his temperature rose to 104F. On 23rd September, 1938 his temperature was 101·2F. in the morning and gradually rose later. As atebrin did not seem to be effective he was put on quinine gr. v by mouth every four hours. His temperature then gradually fell and reached normal on 27th September, 1938. He had no further fever and no return of blackwater, but was very anaemic.

(*Note.*—The last case of blackwater I had in Nigeria had five relapses in one week with delirium and vomiting. It was cured by intramuscular injections of quinine.)

(2) Capt. H. K., Master of a small cargo vessel, was admitted on 8th November, 1938 with a history of fever for the 10 days previous to admission. He had refused to go off duty and had suffered from violent hiccoughs for the last 24 hours. He had subtertian parasites in his blood. There was some tenderness over the liver due to the hiccough but the liver and spleen were not palpable. He was given six intramuscular injections of quinine gr. xii during the next 10 days as both quinine and atebrin, when taken by mouth, were vomited.

Morphia, atropine, ephedrine, mustard plasters, etc., did not control the *hiccoughs which lasted for* 10 *days*, i.e. nine days after admission, and even continued while he was asleep under morphia.

When the hiccough and vomiting did stop he was put on a course of atebrin by mouth as he still had parasites in his blood. He was then discharged to join a mail-boat and put in charge of the ship's surgeon.

I have been informed since then that, in spite of all his treatment, he developed a severe attack of blackwater fever on arrival home. Fortunately he recovered from this also.

(Sgd.) W. NELSON,
Senior Medical Officer.

APPENDIX III.

Report on the Leper Settlement, Ho, 1938.

1. *Staff.*—The Medical Officer, Ho.
   One African Superintendent.
   One Assistant Superintendent. (leper)
   Three male Assistant Dressers. (lepers)
   One female Assistant Dresser. (leper)
   One Mosquito Inspector. (leper)

2. *Buildings.*—These consist of—
   - (*a*) Eleven compounds (seven male and four female) of which the majority consist of four blocks of houses. Each house contains six rooms.
   - (*b*) Separate quarters for Superintendent and Assistant Superintendent.
   - (*c*) Two Churches—Roman Catholic and Presbyterian.
   - (*d*) Carpenter sheds, shoemaker sheds and market shed.
   - (*e*) Quarters for scavengers and caterers.
   - (*f*) Treatment section with usual offices and stores.

3. *Work done.*—For ease of working the Settlement is divided into three sections and injections are given thrice weekly. Drugs used were Moogrol, Alepol, Avenyl and Hydnocarpus oil.

No appreciable improvement in those cases with eye lesions was noted following the use of solganol or myocrysin. As noted in previous reports moogrol had a tendency to cause local abscess formation.

	Result of Treatment.	
	1937.	1938.
Arrested	38	60
Improved	118	83
Slightly improved	10	12
Worse	57	72
Died	15	5
Granted leave	90	63
Absconded	39	10

Of the five deaths, one was due to lobar pneumonia two to pulmonary tuberculosis and two to cardiac disease.

4. *Employment.*—Able-bodied lepers farm the Settlement land. Others are engaged in sandal-making for which a ready market is available. Others are employed in tailoring, carpentry and masonry.

5. *Maintenance.*—The subsistence allowance is ample. Through the kindness of the Honourable Comptroller of Customs a free issue of contraband tobacco and cigarettes has been made available for the patients, contributing materially to their contentment, and has allowed them to spend small sums on other luxuries.

6. *Education.*—Twenty-one children, twelve boys and nine girls, attend school. The Gold Coast Red Cross very kindly helped with books, etc. The Boy Scout Troop, both scouts and cubs, has proved very popular with the children.

7. *Sanitation.*—The appointment of one of the inmates as Mosquito Inspector with consequent house-to-house inspection has proved of great value. The Sanitary Inspector, Ho, continues to pay a weekly visit and checks the work of the local Mosquito Inspector.

Night-soil disposal is by pan latrines which are emptied into disposal pits.

Refuse Disposal.—There are three field-type incinerators.

8. *Water.*—The acute shortage of water mentioned in previous reports still continues.

9. *Amenities.*—Christmas gifts from various sources again made the season popular and enjoyable. By the generosity of friends a village harmonium was gifted to the Settlement. This has been much appreciated both during Divine Services and at other times. The school staged a concert during the year when the rendition of Anthems, etc., by the choir gave great pleasure to all.

10. *Internal Government.*—Each compound elects its own headman or head-woman, and one chief for the Settlement. These form a tribunal and deal with refractory cases, and all delinquencies and contingencies as they arise.

11. *Statistics.*—

Remaining on 31st December, 1937	266
New cases admitted in 1938	51
Old cases readmitted	46
Granted leave and discharged on parole	112
Absconded	10
Died	5
Remaining on 31st December, 1938	236

APPENDIX IV.

Annual Report of the Maternity Hospital, Accra.

BUILDINGS.

There have been no new buildings erected since 1935. Last year's plans for extensions to the Isolation Block had to be postponed owing to the economy cuts due to the cocoa crisis, and for the same reason no additional buildings have been included in this year's estimates.

MIDWIFERY TRAINING SCHOOL.

Sixteen new pupils commenced their midwifery training on 1st April, 1938, and took up residence in the new extension to the hostel. The full complement of the hostel is now forty pupils.

When Dr. Savage proceeded on leave the warden's duties were handed over to Miss Luscombe, the then Senior Nursing Sister at the Maternity Hospital. This arrangement is obviously more satisfactory, since a nursing sister from the nature of the training she has received, is better equipped to be warden of a nurses' hostel than a medical officer.

However, I take this opportunity to draw attention to Dr. Savage's work in initiating the organisation of the first hostel for adult females in this country. Its success has been unquestionable as is proved by the smooth running of the housekeeping, the discipline maintained, the health of the pupils and the general atmosphere of comfort and happiness.

The layout of the grounds, which has been much admired by visitors and passers-by, is the result of considerable thought and energy.

Both the Government and the African community have cause to be proud of the Pupil-midwives Hostel at Korle Bu, and its success in the first few years of its existence has called into being that most valuable asset to any educational institution, namely, a tradition.

The pupils who commenced their training in April, 1938, were the first group, whose course of training is to extend over three years instead of two years as was the previous arrangement. The extra year has been added, in order that the pupils shall receive the benefit of extra practical experience.

Although in the past there has been no difficulty in covering the ground and achieving examination successes in the shorter time, yet the subsequent work of the midwives on district has shown that their sense of responsibility and their understanding of their patients' difficulties have been below the necessary standard.

There have been three Nursing Sisters throughout the year, and the Pupil-midwives Training School has received the benefit more than any other branch of the hospital. There has been more time for the giving of the elementary lectures and ward demonstrations, and more supervision with less reprimanding.

POINTS OF INTEREST IN THE YEAR'S WORK.

The progress of the work of the Maternity Hospital as apart from the Midwifery Training School has shown no marked improvement. A glance of the figures gives one the impression that there has been a set back rather than a forward movement.

It is difficult to put one's finger on the actual cause, and it is much easier to resort to generalization, and mention a number of probable and possible causes, all of which can be easily recognized as forming factors of varying degree of importance, but this does not give appreciable help to those responsible for the administration of a maternity service in this country.

A reduction in the number of labour cases suggests that more cases are being delivered on district by midwives, and that this reduction has been more noticeable in the number of abnormal than normal labours may be considered as very gratifying. However, a glance at the number of cases delivered on district by midwives has an increase of 46 only, whereas the reduction in the number of cases in hospital is 106.

The maternal mortality of hospital cases is higher than previous years. If the most successful midwife working in the best known district in Accra is taken as a criterion on which to judge progress, it is easily noticeable that there is an increase in the number of out-patients, district deliveries, normal primaparous deliveries in hospital, and number of cases sent to hospital by that midwife from that district, and this may be considered as an indication of progress. We are a long way yet from a state of affairs in which the reduction of abnormal midwifery cases in hospital can be justifiably attributed to efficient midwifery on district.

There has been an increase in the number of cases of eclampsia. Also in the number of abortions and cases of ectopic pregnancies. There has been no noticeable increase in the number of normal labour cases. There has been no decrease in the number of new ante-natal cases attending the Out-patient Clinic, but the increase has been largely due to the new Christiansborg Clinic. The incidents of diseases of pregnancy have remained about the same. Maternal morbidity-rate has been slightly reduced, but still-births and neo-natal mortality-rates have been slightly increased.

The standard of the nursing has definitely improved, although there still remains much more room for improvement. The standard of hospital midwifery is on the whole good and always has been. The understanding of the principles of maternal welfare as seen in the Out-patient Department and when the pupils are on district is definitely low and out of all proportion to the hospital midwifery and maternity nursing.

There has been some outstandingly good work done by one or two midwives in the Accra districts, but on the whole progress in this work is lagging behind and there is need for stimulation from a higher authority.

WORK DONE.

In-patient Admissions		1,270
Admitted for ante-natal treatment	450	
Labour cases	583	
Abortions	84	
Post-natal complications	73	
Living infants	507	
Other cases	80	
Number of twins delivered	27	
Number of triplets delivered	1	
Number of quadruplets delivered	1	
Out-patient Attendances		4,868
New ante-natal cases (including X'borg Clinic)	3,904	
New post-natal cases	822	
New cases attending for other conditions, sterility, puerperal, etc.	142	
Total Attendances		15,980
Ante-natal	14,553	
Post-natal	1,074	
Other conditions	353	
Number of midwives who received the Central Midwives Board Certificate		7
Fees collected	£1,313	17s. 4d.

District Midwives Deliveries in Accra and District.

1935	627
1936	889
1937	1,101
1938	1,147

Ante-natal Admissions 450.

List of diseases for which these cases were treated; many patients suffering from more than one condition.

Threatened premature labour		7
Threatened abortion		21
Ante-partum haemorrhage		3
Toxaemia of pregnancy		28
(*a*) (i) Pregnancy kidney, 1st degree ...	11	
(ii) Pre-eclampsia	6	
(iii) Eclampsia	1	
(*b*) Hyperemesis gravidarum ...	6	
(*c*) Acute yellow atrophy	2	
(*d*) Hydramnios		2
Primary anaemia		4
Sickle cell anaemia		8
Secondary anaemia		104
Acute myelogenous leukaemia		1
Intra-uterine death of foetus		4
Acute fevers		12

(*a*) Typhoid	5	
(*b*) Septicaemia—		
(i) Pasturella Septica	1	
(*c*) Meningitis—		
(i) Pneumococcal	1	
(*d*) Bacillary dysentery—		
(i) Shiga	—	
(ii) Flexner	—	
(iii) Unclassified	—	
(*e*) Pyrexia of unknown origin	5	
Urinary tract infections		33
(*a*) Cystitis—		
(i) B. coli	18	
(ii) Gonococcal	2	
(iii) Typhosus	1	
(*b*) Pyelitis—Bacillus coli	12	
Malaria		133
Blackwater fever		1
Amoebic dysentery		5
Chronic nephritis		8
Observation		33
Investigation		7
Cardiovascular system		3
(*a*) V.D.H.	1	
(*b*) Tachycardia	—	
(*c*) Haemorrhoids	1	
(*d*) Varicose veins	1	
Respiratory System		20
(*a*) Pharyngitis	2	
(*b*) Bronchitis	11	
(*c*) Broncho pneumonia	1	
(*d*) Lobar pneumonia	4	
(*e*) Asthma	1	
(*f*) Pulmonary tuberculosis	1	
Digestive system		47
(*a*) Stomatitis	3	
(*b*) Glossitis	17	
(*c*) Enteritis non-specific	13	
(*d*) Colitis	5	
(*e*) Constipation	7	
(*f*) Peritonitis—		
(i) Resulting from acute appendicitis	1	
(ii) Resulting from strangulated umbilical hernia	1	
Helminthiasis		88
(*a*) Ankylostomiasis	31	
(*b*) Ascariasis	40	
(*c*) Schistosomiasis	15	
(*d*) Taenia	1	
(*e*) Guinea-worm	1	
Diseases of the generative organs		22
(*a*) Vulvitis	2	
(*b*) Vaginitis	7	
(*c*) Cervicitis	9	
(*d*) Fibroids associated with pregnancy	2	
(*e*) Ovarian cyst associated with pregnancy	1	
(*f*) Bartholinitis	1	
Skin Affections		19
(*a*) Scabies	5	
(*b*) Dermatitis of unknown origin	2	
(*c*) Intertrigo	1	
(*d*) Ring-worm	11	

Mastitis	8
Debility	35
Hypertension of unknown origin	5
Lymphadenoma	1
Lymphogranuloma	1
Dental caries with abscess of jaw	1
Jaundice catarrhal	1
Syphilis tertiary	1
Yaws tertiary	4
Cellulitis	1
Conjunctivitis	3
Obesity	2
Injury	1

ECLAMPSIA 14.

Fourteen cases of eclampsia were treated during the year. Of these one was an ante-natal case that had started eclamptic fits before admission, and the other was a pre-eclamptic induced by bougies. She developed eclampsia after induction and died undelivered at 36 weeks.

Seven were admitted in labour having started fits before admission.

Three were ante-natal admissions for pre-eclampsia that developed eclampsia at the onset of labour and two were admitted with puerperal eclampsia.

There were six deaths. A mortality of 42·9 per cent.

ANALYSIS OF THE DEATHS OF ECLAMPTIC PATIENTS.

1. Puerperal eclampsia, mutipara, 2nd pregnancy. Had not attended any ante-natal Clinic. Delivered at term in her own home without skilled assistance—baby alive. Had first fit seven hours after delivery ; total of seven fits before admission. Died in coma four hours after admission.

2. Ante-natal eclampsia, attended outside clinic. Signs of pre-eclampsia at 36 weeks. Induced by surgical induction (bougies) because of the toxaemic symptoms. She had nine fits during labour in spite of treatment and died in coma with suppression of urine.

3. Eclamptic admitted in labour at term—primigravida. Attended ante-natal clinic early in pregnancy but not for two months before admission. Had four fits at home and one on admission to hospital. Had been treated by native medicine man in her house and was eventually taken to hospital as the last resort. Six hours after admission, she was delivered of a macerated foetus by perforation and extraction under general anaesthesia. She died of cerebral haemorrhage 14 hours after delivery.

4. Eclamptic admitted in labour at term—primigravida. Had not attended any ante-natal clinic. Had seven fits, treated by native medicine man at home. She died undelivered within an hour of admission into hospital.

5. Eclamptic admitted in labour at term—primigravida. Had not attended any ante-natal clinic. She was admitted with heart failure and jaundice—was delivered two hours after admission and had a fit as the head was crowning. An anaesthetic was administered and delivery was completed by forceps. The baby was still-born and the patient collapsed and died 12 hours after delivery.

6. Ante-natal eclampsia, primipara, 32 weeks pregnant. Had ante-natal supervision from a private medical practitioner. Had six fits before admission and died undelivered five hours after admission.

For the first nine months of the year the following routine treatment was given to eclamptics :—

ONSET OF FIT.

Hours.

0 Morphia Gr. $\frac{1}{4}$, Coramine 1·7c.c. (subcutaneous injection) Mag. Sulphate 10c.c. 25 per cent solution intramuscularly and 5.c.c. after each fit. 500c.c. intravenous glucose if consciousness is not regained between fits over several hours.

UNDER CHLOROFORM AND ETHER ANAESTHESIA.

Gastric Lavage, leaving in the stomach 01.Ric. 2 oz. Mist. Sod. Bicarb. 2 oz., Glucose 4 drachmes.

Colon Lavage, leaving in colon Mist. Mag. Sulphate 2 oz., Mist. Pot. Brom. et chloral 1½ oz.

A catheter is passed and quantity of albumen is estimated.

3 Morphia gr. ¼.
4 Coramine 1 c.c.
7 Mist. Pot. Brom. et chloral 1½ oz. per rectum or by mouth depending on consciousness of the patient.
8 Coramine 1.7 c.c.
12 Mist. Pot. Brom. et chloral 1 oz. by mouth.
16 Coramine ½ c.c. S.O.S.
20 Mist. Pot. Brom. et chloral 1 oz.

And to be continued eight hourly for 72 hours.

Only imperial drink, glucose, barley water and orange juice for first 72 hours after last fit.

The patient is nursed in a darkened room and precautions are taken to ensure absolute quietude. Strict attention is paid to keeping air passages clear, and oxygen is resorted to in presence of cyanosis.

If the foetus is dead in utero, labour may be induced by artificial rupture of membranes within 12 hours of the last dose of morphia given. An enema may be given about 12 hours after the sedative treatment has been discontinued. The intervals between the administration of sedatives may be shortened if the patient is restless or has a fit. They may be lengthened if the respiration rate drops to under 20 per minute and Coramine may then be exhibited. Suppression of urine is a rare complication and this is most conveniently treated by repeated intravenous infusions of 100 c.c. of 20 per cent glucose in normal saline at hourly intervals until the desired effect is obtained. Light diet with extra fluids and glucose is allowed as soon as the patient is delivered.

For the last three months of the year, the following treatment was given :—

Hours.

0 On admission—Morphia gr. ¼ is injected subcutaneously and Chloral Hydrate and Pot. Brom. each of 60 grains in 6 ounces of normal saline is given per rectum.
2 Rectal Chloral and Pot. Brom. is repeated.
4 Morphia gr. ¼ repeated.
6 Rectal Chloral and Pot. Brom. repeated.
8 Morphia gr. ¼ repeated.
10 Rectal Chloral and Pot. Brom. repeated.
12 Morphia gr. ¼ repeated.

The patient is nursed in a dark room and every precaution is taken to ensure quietude. Special care is taken to ensure a clear airway for the patient.

The patient is encouraged to take sips of glucose lemonade at every opportunity. A catheter is passed on admission and at six hourly intervals unless the patient can empty her bladder ; every specimen is tested for albumen and an Esbach's quantitative test carried out.

The treatment lasts on an average for 12 hours. After which time the patient is allowed to recover consciousness.

If the foetal heart is present, labour is induced by artificial rupture of membranes 24 hours after the sedative treatment. This interval is usually necessary to ensure oxidation and elimination of the drugs used.

Of the 14 cases of eclampsia 11 were primiparae ; one of these had twins. And three were multiparae. Nine had been attending ante-natal clinics and five had not. Eight of the babies were still-born including one lot of twins. Four were discharged normally fit babies. Three patients died undelivered.

The mortality figure of 42·9 per cent is high, and is no doubt accounted for by the fact that the patients had had no ante-natal supervision and some of them had been treated with native medicines before admission. The relative merits of the two treatments applied during the year cannot be compared in this report since one has been used for nine months and the other for three months.

We can, however, recommend the simple sedative treatment recently adopted.

Treatment on these lines is being carried out at home and from personal experience we can advise its adoption.

ABORTIONS 84.

Primiparae	25
Multiparae.	59
Complete on admission	43

Incomplete :

(*a*) Completed spontaneously	7
(*b*) Completed surgically	34

Causes :

Malaria	15
Syphilis	17
Toxaemia of pregnancy	1
Severe anaemia	2
Uterine fibroid	2
Pulmonary tuberculosis	1
Unclassified	46

Sepsis :

Septicaemia staphylococcal	1
Sapraemia	8
Other conditions	3

Deaths	Nil
Number attending Ante-natal Clinic	24
Number not attending	60

Two patients were taken away by relatives in a moribund condition.

ECTOPIC PREGNANCIES 16.

Tubal rupture	8
Tubal pregnancy without rupture	2
Tubal abortion with pelvic haematocele	4
Ectopic pregnancy in uterine sinus formed after hysterosalpingectomy for previous interstitial tubal pregnancy	1
Secondary abdominal pregnancy	1
Deaths	2

	Multipara.	Primipara.	Normal Labour.	Abnormal Labour.	Premature Labour.	Cæsarean Section.	Maternal Deaths.
Number attending regularly at the Maternity Hospital Ante-natal Clinic	189	222	316	55	40	12	6
Number attending other Ante-natal Clinic ...	10	13	12	7	4	—	—
Number not attending any clinic nor private doctor	95	54	49	79	21	—	21
Totals	294	289	377	141	65	12	27

PRESENTATIONS.

611 Cases including 27 Twins.

Vertex :	
V.L.O.A.	291
V.R.O.A.	186
V.R.O.P.	12
V.L.O.P.	12
P.O.P.	11
Unclassified	23
Breech :	
R.S.A.	17
L.S.A.	16
Unclassified	21
Face :	
R.M.P.	2
R.M.A.	1
Transverse	10
Brow	2
Shoulder	1
Hand	1
Unclassified	5

MATERNITY FIGURES, 1938.

Maternal Morbidity—including Fatal Cases 142.

Total Deliveries 583.

Morbidity Rate 24·4 per cent.

Puerperal Sepsis			73
(*a*) Sapremia		44	
(i) Haemolytic streptococcus	4		
(ii) Non-haemolytic streptococcus	4		
(iii) Diptheroids	1		
(iv) Staphylococcus	1		
(v) Bacillus coli	4		
(vi) Unclassified	10		
(*b*) Septicaemia		7	
(i) Haemolytic streptococcus	1		
(ii) Non-haemolytic streptococcus	1		
(iii) Staphylococcus	1		
(vi) Diptheroids	1		
(v) Pasturella septica	1		
(vi) Unclassified	2		
(*c*) Pelvic cellulitis	8		
(*d*) Puerperal mania	3		
(*e*) Septic lacerations	8		
(*f*) General peritonitis	3		
Breast affections			8
(*a*) Simple mastitis		5	
(*b*) Suppurative mastitis		3	
Pyelitis			3
Malaria			17
Acute fevers			5
(*a*) Typhoid		2	
(*b*) Pneumonia		2	
(*c*) P.U.O.		1	
Anaemia			4
Debility			4
Gastro-enteritis			1
Eclampsia			12
Placenta praevia			1

Pulmonary tuberculosis	2
Acute yellow atrophy	1
Ruptured uterus	7
Pleurisy	1
Native medicine toxaemia	1
Acute abdomen	1
Coma of unknown cause	1

MATERNITY FIGURES, 1938.

MATERNAL MORTALITY 47.

Ante-natal.		Labour.		Puerperium.	
Acute yellow atrophy	1	Obstructed labour	7	Acute yellow atrophy	1
Eclampsia	1	Eclampsia	2	Peritonitis, general	2
Typhoid fever	1	Ruptured uterus	7	Septicaemia :—	
Acute myelogenous leukaemia	2	Obstetric, shock simple	1	Streptococcal	3
Strangulated umbilical hernia	1	Obstetric shock and acute illness	1	Anaerobic diptheroids	1
Acute appendicitis	1	Intra-partum haemorrhage	1	Unclassified	2
Pneumococcal meningitis	1	Placenta Praevia	1	Eclampsia	3
		Post-partum haemorrhage	1	Sickle-celled anaemia	1
				Severe anaemia	1
				Lobar pneumonia	1
				Coma of unknown cause	1
Total	8		21		16

Total deliveries	583
Total deaths during labour and puerperium	37
Maternal mortality rate	6·4 per cent.
Total Ante-natal admissions	450
Total deaths	8
Ante-natal mortality rate	1·7 per cent.
No deaths following abortions	—
Number of deaths due to ectopic pregnancy	2

MATERNITY FIGURES, 1938.

STILL-BIRTHS 105.

Analysis of Still-births.

Intra-uterine asphyxia due to :—	
Dystocia	17
Obstructed labour	18
Prolonged labour	12
Maternal toxaemia	10
Maternal debility and acute illness	4
Ante-partum haemorrhage	8
Prolapsed cord	2
Prematurity	12
Macerated foetus of unknown cause	5
Placenta praevia	3
Congenital syphilis	9
Post-maturity	3
Hydrocephalus	1
Secondary abdominal pregnancy	1
Total number of babies born	612
Foetal mortality rate	17·2 per cent.

INFANTS DEATHS 77.

(Including new-born babies admitted after birth.)

Analysis of Infants Deaths.

Prematurity	31
Intracranial injury	10
Congenital debility	8
Haemorrhagica neonatorum	2
Maternal toxaemia	4
Asphyxia neonatorum	5
Congenital malformation	1

INFANTS DEATHS—*contd.*

Broncho-pneumonia	2
Gastro-enteritis	4
Atelectasis	7
Congenital syphilis	2
Native vaccination	1
Neo-natal mortality rate	12·6 *per cent.*

OPERATIONS.

Surgical induction of labour			35
(*a*) By bougie		10	
(*b*) Artificial rupture of membranes		25	
Forceps deliveries			48
(*a*) Normal vertex presentations		19	
(*b*) After manual rotation of occiput		26	
(*c*) After reposition of cord		1	
(*d*) On after-coming head in breech delivery		1	
(*e*) Persistent mental posterior		1	
Application of Willett's forceps			2
Manual extract foetus in abnormal presentations			9
(*a*) Internal podalic version and extraction		4	
(*b*) Internal podalic version for placenta praevia		2	
(*c*) Bringing down extended legs and arms in breech delivery		3	
Destructive operations on the foetus			28
(*a*) Craniotomy		15	
(*b*) Craniotomy and embryotomy		2	
(*c*) Decapitation		5	
(*d*) Perforation		6	
Abdominal section			42
(*a*) Caesarean section		12	
(i) Classical	9		
(ii) Lower segment	3		
(*b*) Caesarean hysterectomy		2	
(*c*) Laparotomy for		28	
(i) Removal of ectopic pregnancies	15		
(ii) Removal of secondary abdominal pregnancies	1		
(iii) Hysterectomy	1		
(iv) Salpingo-oophorectomy	3		
(v) Repair of uterine rupture	2		
(vi) Right salpingostomy	1		
(vii) Strangulated umbilical hernia	1		
(viii) Appendicectomy	1		
(ix) Myomectomy	3		
Uterine exploratory operations			68
(*a*) Manual removal of placenta		24	
(*b*) Evacuation of uterus for retained products of conception		34	
(*c*) Dilatation, curettage and insufflation of Fallopian tubes for sterility		10	
Reparative operations on mother			65
(*a*) Perineal repair		38	
(*b*) Vaginal repair		6	
(*c*) Episiotomy		20	
(*d*) Cervical repair		1	
Other Operations			16
Examination under anaesthetic		3	
Stomach and colon lavage for eclampsia		2	
Circumcision		6	
Incision and drainage of breast abscess		3	
Avulsion of toe nail		1	
Removal of sebaceous cyst		1	

LABORATORY FINDINGS.

Wassermann reactions :

Total number examined		731
Double plus	166	
Single plus	53	
Plus or minus	34	
Negative	478	

Malaria :

Total number of blood smears examined		1,953
Number showing malaria parasites	410	
Number showing no malaria parasites	1,543	
Percentage showing malaria parasites		21%

Stools for examination of Ova :

Total number examined		726
Number positive for ankylostomes	127	
Number positive for ascaries	163	
Number positive for E. histolytica	7	
Number positive for taenia	2	
Percentage showing ankylostomes		17·5%
Percentage showing ascaries		22·5%

X-ray examinations :

Total number		51

Blood cultures :

Total number cultured		40

Organisms :

Haemolytic streptococcus	3	
Other streptococci	5	
Staphylococcus aureus	3	
Bacillus typhosus	2	
Pastuerella septica	1	
Number sterile on culture	26	

Urine cultures :

Total number cultured		214
Bacillus coli	50	
B. faecalin alkaligenes	3	
Bac. pyocyaneus	1	
Staphylococcus	4	
B. typhosus	2	
Diphtheroids	8	
Streptococcus	4	
Number sterile on culture	142	

Cervical and intrauterine cultures:

Total number cultured		41
Haemolytic streptococcus	3	
Number negative on culture	38	

Faeces cultured :

Total number cultured		45

Organisms :

Morgan No. 1 bacillus	1	
Number negative on culture	44	

Throat swabs :

Short chain streptococcus		16

APPENDIX V.

Trypanosomiasis Campaign—Progress Report.

General account of work.—Towards the end of 1937, survey was begun in Lawra district. Vacancies in the team were filled up by selection from local natives. Work was begun on the same plan as in Mamprusi ; groups of villages were selected for survey, the selection taking into account both the hospital distribution figures and the entomological features of the country.

Serious discrepancies between hospital distribution figures and the results of the survey in the villages to the north of Lawra roused suspicion that all was not well with the survey. Hospital figures alone might be misleading for many reasons, but the Chiefs and White Fathers knew that villages in which we found only a few infected were heavily infected. The Senior Medical Officer, who was due for leave, therefore asked for an extension, which was kindly forwarded and supported by the Honourable Director of Medical Services, and permitted by His Excellency.

It was decided to attempt to regain the confidence of the people by doing some treatment at once, instead of postponing treatment to the end of the survey as had been originally intended. The Chief of Burifoo, a few miles south of Lawra, at this time reported that many of his children were dying. An offer of examination and treatment was made to him, care being taken to avoid forcing him. He accepted. The sick children were found to be cases of chronic malaria, not of trypanosomiasis, but were, with the permission of the Medical Officer, treated at Burifoo, while a survey was being done. A similar request was then made at Han, which was next surveyed. The team next worked at Kwala and Zini, hoping to get some help from the work done by the Senior Medical Officer and the team commander (Mr. Ribeiro) some years ago in this area.

Work there had to be stopped owing to scarcity of food, but some villages to the west of Han on the main road were examined ; and Nadawli in Wa district just south of the Lawra boundary was surveyed in response to a request through the Medical Officer, Wa.

Mass treatment was begun at Burifoo when the survey was completed. The purpose and rationale of treatment were carefully explained to the Chief and to such of the people as we came into personal contact with. The course of treatment was five injections of Antrypol, which will not cure advanced cases, but which produces a period of sterility in all, and which cures early cases.

The attendance of cases for treatment was perfect. In the whole series of 345 injections at Burifoo only two were missed—one a child who wandered off during the delay in starting on the first day, and the other a woman who gave birth on her way to the injection place.

The treatment team was at first under the command of Mr. Venkumini, Laboratory Attendant. As we had not originally intended to start treatment until July, we had not received our full equipment. Some equipment was lent by the Medical Officer, Lawra, and some issued to us by the Assistant Director of Medical Service, Kumasi, to both of whom our thanks are due. The work was slow at first, but became rapid as organization improved.

Towards the end of April Mr. Venkumini went to Kusasi in command of a survey team, and Mr. Ribeiro was granted leave on urgent private affairs. This left the Senior Medical Officer with no established officer either to help with his own work or to lend the Medical Officer who needed help with his trypanosomiasis work.

A locally trained microscopist was therefore placed in command of the survey team, and later of the treatment team. Although this man had reached only Standard III in Gambaga school, he was found to be quite competent to carry out all the work.

The supervision was, of course, constant and minute at first, and was gradually and deliberately relaxed. When a Laboratory Attendant became available he was detailed to Lawra hospital and the local man remained in charge of the team.

The survey team in Kusasi examined the villages on the southward course of the White Volta. In July they entered Southern Mamprussi and began the resurvey of the area which had been sample surveyed last year. During 1938 we resurveyed one of the four sample areas, surveyed a new area to the west of the north road, and began a second of the sample areas. The illness of the Senior Medical Officer prevented the treatment team following closely on the survey team, but when treatment finally began it made more rapid progress than had been expected and caught up on the survey.

In Mamprussi Mr. Venkumini was made section commander, i.e. he was in general charge of the two teams, looked after their supplies, and instructed them what villages to visit. The section headquarters were established at a convenient spot on a motor road, and had a bicycle and distilling apparatus. Lists of cases found positive were sent by the survey to section headquarters, which compiled from them the treatment lists for each centre.

QUANTITATIVE SUMMARY OF WORK.

Area completely examined by village-to-village survey, about	400	sq miles.
Area mass-treated, about	380	sq. miles.
Number of persons examined	16,678	in S. Mamprussi
	9,655	in Kusasi
	12,963	in Lawra-Tumu
	1,050	in Wa district.
	20,346	
Number of persons treated in the field	98	in Lawra-Tumu
	95	in Wa district
	333	in Mamprussi
	526	

INFECTION RATES.

Area.	Highest Village Rate.	Lowest Village Rate.	Average for area.
Near Lawra	—	Unreliable	—
Burifoo area	3%	nil	3%
Nadawli area	16%	3%	9%
Border area between Lawra and Tumu	12%	3%	6%
S. Mamprussi	12%	nil	1%
Kusasi	2%	nil	1%

2. *Investigation of special subjects.*

(*a*) *Comparison with hospital returns.*—We have found a close agreement in Mamprussi between hospital figures and those of the survey, provided the hospital figures are compiled village by village. It will therefore not be necessary to re-survey this area for information.

(*b*) *History of cases found last year.*—We have found a considerable number of cases who were positive last year, are still positive this year, and have had no symptoms nor treatment in the interval (20 per cent of last years positive.) At one town three miles from Gambaga the figure was 50 per cent (five out of ten cases). Twenty-one per cent of the cases had been treated ; 2 per cent had died ; spontaneous cure has occurred in about 10 per cent ; the others could not be traced.

From this may be deduced :—

(i) That the dispensaries have reduced the death-rate from the disease to very small proportions.

(ii) But that the dispensaries have little effect on the incidence of the disease.

(*c*) *General trend of the disease.*—The incidence is decreasing in Mamprussi. The reliability of the hospital returns has been proved by their agreement with the survey. The careful village records which have been kept at Nakpanduri show a constant year-to-year decrease. The decrease appears to be due mainly to the clearings, because the decrease is much more marked in females than in males in Bimmoba area, where the clearings have been well done and well maintained :

Year.	No. of males treated.	No. of females.	Male No.	Excess per cent.
1934	442	428	14	2%
1935	587	542	45	4%
1936	388	326	62	9%
1937	341	271	70	11%
1938	294	201	93	18%

On the other hand we find male and female ratios about equal in the south-western area of Mamprussi where the clearings are not so good.

(*d*) *Topographical study of incidence.*—It has been noted that some parts of a village are often more heavily infected than others, although both use the same water-point. In some cases this fact has been noted even when fly are confined to the immediate vicinity of the water during the greater part of the year.

A small epidemic occurred in Gambaga school just after the height of the rains. All the boys had been examined twice for trypanosomes since their return from holidays ; all boys who are sick report to the Medical Officer, and the five cases who were found to be infected had not reported any symptom that could be referred to trypanosomiasis. It would therefore seem certain that these boys were infected at Gambaga at the height of the rains.

During the greater part of the year fly occur in Gambaga only in a focus about a mile from the school, and to reach the school from there they would have to pass the town water-place, which is in a cleared space. Between the town water-place and the school is a shady avenue of nim. To reach the town from the water-place the women with their pots pass over a wide cleared area, then across an avenue of silk-cotton trees, then over another cleared space. All round Gambaga town there is a clearing extending for about half a mile, with trees at wide intervals. But at the school there is a shady grove near the school well ; and on two occasions during the height of the rains riverine tsetse were found at this grove.

We have not yet had expert entomological study of this school epidemic ; but we venture to suggest that in this case flies spread during their maximum extension to the town water-place, becoming infected by cases coming in for treatment by a road which crosses the stream nearby ; that the wide clearing and the scanty shade of the silk-cottons prevented their access to the town ; that the shady nim avenue gave them a pathway, passible only during the period of highest humidity, to the school well, where they remained when the conditions were too adverse to allow their return, and hence caused the very high infection rate of five cases amongst eighty boys.

This theory seems to explain the puzzling epidemics that occur from time to time in small villages. Some of these were noted in last year's report. This year the most striking example is Gbankura. We found there 89 inhabitants of whom 11 were infected—12 per cent. The numbers who had attended Walewale dispensary in the last three years were : 1936, 33 ; 1937, 79 ; 1938, 13. It is possible that these figures are exaggerated by the inclusion, in previous years, of some small hamlets with Gbankura, but even allowing for that possible error, it seems that we have here an example of a suddenly flaring up epidemic which dies down of itself.

The method of farming in Mamprussi uses a rotation of crops for about four years, after which the farm lies fallow for twelve. This will cause changes in the distribution of the bush ; and at some period we may get the condition which seems to have obtained at Gambaga school—a group of flies isolated in a small patch of cover at the end of the rains, unable to go elsewhere, and feeding on the human population. Next year a change of farm distribution, or less favourable meteorological conditions, may eliminate the source of infection.

Another source of information supports the theory of the great importance of the few weeks of maximum spread of the fly. The Medical Officers and Dispensers are asked to report cases missed by the survey—that is cases seen and found negative by us and soon after found positive at a dispensary. During the height of the rains such cases were numerous. They amounted in one village done in

August to one quarter of the cases found. But since the dry season began the number of cases missed has been very small. It seems probable that the cases missed were in the early stage of infection or were infected after the survey. If this be so it would appear that the period at the end of the rains is of considerable importance.

The topographical location and the sex ratio are of great value in deciding preventive measures in order to secure maximum benefit with minimal destruction of trees. The measures to be taken will vary according as infection is occurring mainly by man-fly contact at the water-place, in bush, or in the houses. Pure water-point infection appears to occur only at Dikpe, the riverside suburb of Lawra, which has 5 per cent female infection and 1 per cent male. Bush infection is important in Mamprussi. House infection can hardly occur alone, for the fly cannot breed in houses and therefore must have some other focus.

Except in a few small villages on the actual banks of streams, house infection probably depends on the maximum extension of the fly. It occurs at Nadawli, in the villages to the east of Lawra, in Kusasi, and in some Mamprussi villages.

3. *Hospitals and dispensaries.*—The work at Lawra hospital has been thoroughly reorganized and has now a very high degree of efficiency. The principle of having at least two completely competent officers at each treatment centre has been introduced during the year. Nakpanduri have continued their high standard of work. Walewale formerly suffered from lack of staff, but a high standard was always aimed at and is now being achieved. Gambaga is hampered by the poor building and by lack of staff to cope with the increase of sleeping sickness and the large amount of surgical work being done.

4. *Public health measures.*—Last dry season the clearings at Yeji and Bamboi were completed. This dry season the clearings connecting Southern Mamprussi and Kusasi are in progress. They are intended to protect the slightly infected Kusasi from the heavily infected Southern Mamprussi.

5. During the year the four fly rounds which correspond to the four sample areas were continued. A special investigation of *G. submorsitans* was carried out in Southern Mamprussi. The experiments on control of fly in the sacred groves were continued in Lawra district, as well as observations at the Kamba River and at other important points in the area. The entomologist will report on these in due course.

(Sgd.) G. SAUNDERS,
Senior Medical Officer,
Trypanosomiasis Campaign.

APPENDIX VI.

Report on the Mining Areas of the Western Province.

During the year 1938, throughout the gold mining areas of the Western Province, development and expansion has continued at an enhanced rate. Gold has remained at its high premium, and practically all the producing companies again record a record tonnage of ore dealt with, and gold exported.

The payable ore reserves of the established lode mines have increased rapidly and are well ahead of production, further ensuring the longevity of the mines in question.

The tendency towards stabilisation has become more marked, several of the smaller mines having practically ceased further development, and concentrated on milling, on a small scale, their payable ore reserves.

Within the next two years it is more than probable that gold mining in the Western Province will be limited to the large producing mines with a minimum life of ten years or more.

The Bremang Gold Dredging Company Limited, which possesses extensive concessions on the Ancobra River, commenced dredging operations with the first two dredges towards the middle of the year, and has shown considerable promise.

There is every indication of further development in the direction of gold dredging along the gravel flats of the Offin River.

The only manganese mine, the property of the African Manganese Company Limited, at Nsuta, has continued large-scale production.

The question of mine labour, its recruitment, housing, feeding, control and general conditions of employment still constitutes one of the greatest and most urgent problems connected with the industry.

The establishment of a Government Department of Labour, under the direction of a Commissioner of Labour at the beginning of the current financial year, will prove an invaluable aid in investigating and formulating possible solutions to the many problems that have arisen in connection with African labour employed by the mining companies.

Most of the established companies have progressed steadily in the sanitary improvement of their mining areas, and in the betterment of the environment of their employees, but progress with regard to housing and available adequate food supplies for the African mine worker is still far from satisfactory.

During the year most of the important mining and mining health areas, defined under the Mining Health Areas Regulations, B26 of 1938, were declared ; and legal authority to carry out the provisions of these Regulations thus obtained.

With the aid of these legal sanctions a definite and progressive improvement can be recorded in the sanitary conditions of the numerous large towns and villages in the vicinity of the declared mining areas. Towards the end of the year, unauthorised and slum building was practically brought to a standstill and demolition of the worst insanitary hovels commenced. This very necessary work is yet in its infancy, but as large new layouts for rehousing, become available shortly, the rate of progression in slum clearance will greatly be accelerated.

The new inspectorate staff is becoming well co-ordinated, and conversant in its manifold duties.

The Sanitary Boards of Bibiani and Ntubia although possessing no statutory powers have continued to prove highly successful in their respective areas.

It becomes more and more patent that real and effective progress in sanitary control in these highly industrialised, densely populated areas, peopled chiefly by immigrant labour, largely detribalised, will be dependent upon the institution of similar Boards but possessing statutory powers.

SUMMARY OF THE SANITARY CONDITIONS IN THE AREAS UNDER MINES CONTROL, WESTERN PROVINCE.

List of important Mines and Labour Employed.

Company.	Where working.	Labour.	
		Europeans.	Africans.
1. African Manganese Co., Limited (*a*) (*b*)	Nsuta	43	1,058
2. Amalgamated Banket Areas Limited (*a*) (*b*) ...	Tarkwa ...	115	4,445
3. Ariston Gold Mines Limited (1929) Limited (*a*) (*b*)	Prestea ...	90	2,877
4. Bibiani (1927) Limited (*a*) (*b*)	Bibiani ...	94	4,019
5. Bremang Gold Dredging Co., Limited (*a*) (*c*) ...	Tomento ...	40	862
6. Gold Coast Banket Areas Limited (*a*) (*b*) ...	Aboso	72	2,108
7. Gold Coast Main Reef Limited	Bondaye ...	22	756
8. Marlu Gold Areas Limited (*a*) (*b*)	Bogosu ...	60	1,534
9. Obuom Gold Mines Limited (*b*)	Ntubia ...	9	541
10. South Banket Areas Limited	Tamsoo ...	25	555
11. Tano Gold Dredging Limited (*c*)	Asankrangwa ...	21	316
12. Tarquah and Abosso Mines Limited (*a*) (*b*) ...	Aboso	74	4,037
Total	—	665	23,108

The total labour employed by the same companies on 31st December, 1937, amounted to 601 Europeans, and 20,351 Africans showing a net increase during the twelve months of 64 Europeans and 2,757 African employees. All figures represent a daily average.

(*a*) Denotes mine with full-time Medical Officer.
(*b*) Denotes mine in production.
(*c*) Denotes alluvial gold dredging.

Until the very heavy programmes of expansion associated with several of the larger companies are completed, a slight progressive increase in both European and African labour employed is to be expected ; after which there should be a rapid decrease in the number of both classes employed to a more or less stable figure.

(*a*) *Bush Clearing and Maintenance of Cleared Areas.*

In ten out of the twelve mines enumerated, adequate areas of clearing in and around the mine building, residential areas, and mine villages have been well maintained. Increasing advantage has been taken of re-planting clearings with dhub grass. There is still, however, a tendency to economise in this very necessary sanitary measure, on the part of the smaller non-producing companies.

(*b*) *Surface Drainage.*

On all the twelve mines surface drainage is fairly satisfactorily dealt with, more and more permanent concrete drains are replacing the existing earth drains, which are difficult to maintain in a sanitary condition, and are expensive in upkeep.

On most of the producing mines, the question of the disposal of mine tailings has received careful forethought. So often in the past the indiscriminate disposal of tailings has led to interference with the normal watersheds, and the establishment of extensive malarial swamps difficult to deal with subsequently.

(*c*) *Combustible Refuse Collection and Disposal.*

This is adequately and satisfactorily dealt with on all the mines. Collected refuse from portable and permanent dustbins is dealt with by incineration in either concrete-built destructors, or the equally efficient swish incinerators. Two mines combine refuse destruction with night-soil incineration.

(*d*) *Incombustible Refuse Disposal.*

This is efficiently dealt with on all mines.

(*e*) *Latrines.*

The pail system is now universally employed, and the latrines provided for African labour both on the plant and in the villages, are almost without exception of satisfactory sanitary types. On most mines they are carefully supervised and kept free from nuisance.

Recently one or two companies have installed septic tank latrines for their African labour in carefully controlled areas such as mine watchmen's compounds, and in the reduction houses. The results of this experiment will be carefully watched with interest, with a view to possible extension in the future. This type of latrine, when carefully controlled, well sited, and not overloaded, is a vast improvement on the pail system.

Septic tank water closets are increasingly replacing the pan in European bungalows.

(*f*) *Night-soil Disposal.*

Six mines now dispose of their night-soil most efficiently by incineration. The remainder rely on disposal in fly-proofed disposal pits. The chief disadvantages of the latter method are that large areas of potentially valuable building land are rendered sterile for the purpose of building, and the difficulty of maintaining complete fly-proofing.

(*g*) *Water Supplies.*

Nine of the companies have a piped water supply to their European bungalows ; seven of these extend this supply to their mine villages. The mine villages without a pipe-borne water supply which belong to the two dredging companies and three smaller non-producing mines, are provided with shallow protected wells.

The sources for the pipe-borne water supplies vary. Five companies rely upon underground water pumped from disused levels, three from impounded spring water, and one from a deep well source. Of the pipe-borne supplies, two are delivered untreated, one company relies on chlorination alone, one on slow sand filtration alone, whilst the remainder deal with the supply before distribution by slow or rapid sand filtration followed by chlorination.

Samples from all the mines are periodically submitted to the Health Department, Sekondi, for bacteriological examination. The purity of the samples vary from mine to mine and at different periods from the same mine. Generally speaking, the position with regard to water supplies is progressively improving, but the ideal of a completely adequate and pure supply sufficient for all needs on every mine, has yet to be attained.

(*h*) *Bathing Facilities.*

Shaft head baths and changing rooms are provided by all the lode gold mines for their underground European employees, and can be considered satisfactory.

Unfortunately, with one exception, no such provision is made for the African underground labour. Public bathrooms more or less adequately supplied with unheated water have been provided in the various mine villages.

The position of the mine labourer in this respect is unsatisfactory. He comes off shift from underground, dirty, hot and sweating. He then walks to his village which may vary from half a mile to a mile or more, in all conditions of weather, and only then can he cleanse himself, in the open with unheated water.

The importance of providing shaft head tepid baths and adequate changing facilities for all underground workers, as a health measure of first importance has repeatedly been brought to the notice of the various managements.

(*i*) *Markets and Food Supplies.*

The position remains substantially the same as when the last annual report was written. No company feeds its own labour. Most of them have markets within their mining areas, which are controlled by the management, and from the private vendors the company levies market dues. In general, the markets are badly constructed and overcrowded. Food supplies in the mining districts are far from abundant and enhanced in price. Essential animal protein is very scarce and outside the purchasing power of the average mine labourer. Food supplies are in the hands of private enterprise formed into a close, organised and powerful ring. A recent attempt by a Cold Storage Company to import for sale in the mining districts, frozen meat, which can be sold at the low figure of sixpence to eightpence a pound, has met with some success.

At the moment, however, with the present wage standards, it is impossible for the average mine labourer to obtain an adequate balanced dietary.

(*j*) *Mosquito Control.*

Again, one can record progressive improvement in mosquito control in most of the mining areas, but much still remains to be effected. Much more use could be made of subsoil, contour and vertical drainage. On properties where swamp reclamation, drainage, and other anti-malarial schemes have been pursued vigorously, the drop in the incidence of malaria infection amongst the European and African labour force has been marked.

The control of domestic mosquito breeding in and around the mine villages, European residential areas, and in the numerous potential artificial breeding places connected with mining plant, is much improved. In this respect, the quality and energy of the sanitary personnel is of the greatest importance.

In some cases the village masters are ill-chosen with regard to their ability as sanitarians, and have frequently to combine their work as village master with other duties in connection with the mine.

(*k*) *Hospital Accommodation.*

Seven mines have their own hospital accommodation for their African employees. Five of these are modern, well-sited, well-designed and adequately equipped. The African hospitals of two of the largest producing mines, namely, Bibiani (1927) Ltd., and Tarquah and Abosso Mines Limited, are far from satisfactory, and are inadequate for companies employing such large labour forces.

With the exception of Marlu Gold Areas Limited, which has a well-equipped and staffed European hospital, all the companies depend on the Government European hospitals at Takoradi or Kumasi for the treatment of serious European cases.

I would again point out the advisability for the establishment by the companies of a central European hospital, well staffed and equipped to deal with any type of case.

(*l*) *Medical Attendance.*

Seven mining companies have their own full-time Medical Officers with fairly satisfactory medical and sanitary subordinate personnel. The Medical Officer, Gold Coast Banket Areas, Limited, acts also for South Banket Areas, Limited. The Government Medical Officer, Dunkwa, is retained by Obuom Gold Mine, Limited, and the Gold Coast Selection Trust, Limited.

The Medical Officer, Ariston (1929) Limited, also acts for the neighbouring Gold Coast Main Reef, Limited. The Medical Officer, Marlu Gold Areas, Limited, is also retained by Bremang Gold Dredging Company, Limited, and Tano Gold Dredging, Limited.

The mines without resident Medical Officers, have fairly well-equipped dispensaries, and dressing stations in charge of African staff capable of dealing reasonably adequately with minor injuries and maladies.

The examination of recruits for mine labour with the present mines medical organisation, cannot be regarded as satisfactory. Few Medical Officers have the time for a reasonably detailed clinical examination, only one company can be said to have any facility or equipment for pathological or radiological investigations.

Under the present system it is difficult to prevent the employment of labour, other than those showing the grosser or more easily detectable signs of constitutional disease.

(*m*) *European Housing.*

There has been a very great improvement in the standard of European housing on all the mines. On certain of the larger mines, a few unsatisfactory bungalows housing the junior European underground workers still remain. In most cases the new bungalows erected are well-planned, and of a type suitable for occupation in an admittedly trying tropical climate.

The question of air conditioning is worthy of serious consideration.

(*n*) *Housing of African Labour.*

This constitutes the most serious and major sanitary problem to be met with in the mining areas. The rate of progress of the housing schemes for African labour, undertaken by almost all of the producing companies has been slow, and the housing problem has now reached acute proportions.

To quote two examples : Within a period of twelve months Bibiani (1927) Limited, increased their labour strength from 2,769 to 4,019 ; Amalgamated Banket Areas, Limited, within the same period, increased from 3,201 to 4,445. In neither case was one-tenth of this increased labour force, housed by the company.

Both mines are situated in areas surrounded by existing congested slum towns and villages already filled to the point of saturation.

The policy of the large majority of the companies has been to obtain the labour first and to consider the question of housing at leisure.

Unless serious repercussions are to ensue, it is essential that large and comprehensive housing schemes should be placed in hand by the majority of the large producing companies forthwith.

The lack of adequate accommodation for the increased importation of mine labour, by the mining companies has proved a serious obstacle in combating the growth of unauthorised slum building in the vicinity of the larger mining areas.

(*o*) *Underground Sanitation.*

Ventilation.—Practically all the mines are ventilated by controlled natural convection, and conditions vary in the different mines according to the depth of the workings and the differences in level between the upcast and downcast shafts. In some of the deeper parts of certain of the mines conditions with regard to temperatures, humidity and movement of air are somewhat trying, but it is difficult to dogmatise without precise scientific data. The sinking of deep vertical shafts which are nearing completion on several of the larger mines and their connection to existing deep levels will do much to improve natural ventilation.

Drainage.—Generally can be considered satisfactory on most of the mines. Wet levels are the exception, and the risk of ankylostome infestation from this cause minimised.

Latrine Accommodation.—Varies greatly in different mines. The need for locating latrines in short cross-cuts away from the general traffic of the levels is generally appreciated, but some managers are persistent still in siting latrines in unsuitable places.

FIRST-AID EQUIPMENT AND ORGANISATION.

Many of the mining companies are now beginning to realise the necessity for establishing efficient first-aid organisations underground and have made arrangements for the supply of proper equipment and the training of personnel.

SANITARY CONDITIONS IN TOWNS AND VILLAGES IN THE VICINITY OF MINING AREAS.

Slow but steady progress has taken place in the improvement of the sanitation of the large towns and villages adjacent to, and in many cases contiguous with the mining areas. Excellent work has continued to be accomplished by the unofficial Sanitary Boards controlling the Bibiani and Ntubia Mining Health Areas.

With few exceptions little or no help has been received from the local Chiefs who derive considerable incomes from house plots leased in these areas.

A large part of the Health Department's activities has been devoted to the control of unauthorised slum building in the mining health areas, and as more legal control has become operative, these activities have resulted in an increasing measure of success.

It can be said with some assurance, that towards the end of the year, in so far as the areas controlled by the Mining Health Areas Ordinance were concerned, the problem was well in hand.

LAY-OUTS FOR TOWNS AND VILLAGES.

The essential success for any scheme of building control, and slum clearance, depends largely on the provision of adequate suitable lay-outs. During the year the legal and other difficulties in this respect were surmounted and several new lay-outs were demarcated. Within the next few months demarcated lay-outs will be available in all the important mining districts. Considerable success has attended the efforts at building control in the Marlu Mining Health Area. Most of the plots in the new lay-out at Bogosu have been taken up, and over fifty substantial sanitary buildings are already erected.

A bill providing for the institution of a statutory Sanitary Board at Tarkwa has been drafted and is under the consideration of Government.

When this bill becomes effective, one of the largest and most important areas of the mining industry, an area embracing approximately forty square miles, will be brought under the control of a statutory Board.

The area will include the whole of the Tarkwa Common Mining Health Area, including the large towns of Tarkwa and Aboso but excluding all the declared mining areas. When the provisions of this bill are operative real progress may be expected.

EPIDEMIC DISEASE.

No outbreaks of serious epidemic disease in the mining districts were recorded during the year. The congestion and overcrowding in the insanitary towns and villages in the mining districts is, however, an ever-constant source of anxiety.

Sporadic outbreaks of smallpox occurred during the earlier part of the year in the sparsely populated area of the Western Frontier. The origin in each case was traced to the French side of the frontier. Prompt measures were taken, extension of the outbreak was limited, and finally stamped out. Particular attention has been directed towards obtaining a maximum percentage of vaccination in the densely populated mining districts.

LEGISLATION AFFECTING PUBLIC HEALTH IN THE MINING DISTRICTS.

The following were the more important Orders and Regulations enacted during the year:—

(*a*) Order No. 42 of 1938, declaring Tano Gold Dredging Company, Limited. Mining Health Area.

(*b*) Order No. 44 of 1938, revocation of the Mining Health (Ntubia Concession) Area Order, 1935.

(*c*) Order No. 46 of 1938, declaring Tano Gold Dredging Company, Limited, Mining Areas.

(*d*) Order No. 22 of 1938, declaring Bibiani North Mining Health Area.

(*e*) Order No. 79 of 1938, declaring Bremang Gold Dredging Company, Limited, Mining Health Area.

(*f*) Order No. 17 of 1938, declaring Bibiani (1927) Limited, Mining Health Area.

(*g*) Order No. 66 of 1938, declaring Gold Coast Banket Areas, Limited, Mining Area.

(*h*) Order No. 67 of 1938, declaring Nsuta African Manganese Company, Limited, Mining Area.

(*i*) Order No. 68 of 1938, declaring South Banket Areas, Limited, Mining Area.

(*j*) Order No. 69 of 1938, declaring Tarquah and Abosso Mines, Limited, Mining Area.

(*k*) Order No. 85, declaring the Tarkwa Common Mining Health Area.

(*l*) Regulation No. 25 of 1938, Mining Health Areas (Amendment) Regulation, 1938.

(*m*) Ordinance No. 32 of 1938. The Towns Amendment Ordinance, 1938.

PROPOSALS FOR FUTURE BUILDING AND SANITARY CONTROL IN MINING DISTRICTS.

Up to the present time building and sanitary control in the mining districts has been effected under two separate Ordinances, the Towns Ordinance Cap. 69, and the Mining Health Areas Ordinance, Cap. 127.

There are wide divergences in the powers conferred under these two Ordinances which apply to areas very similar in constitution and character. This has led to considerable difficulties in administration, and considerable delay in effecting very necessary and urgent advances in the improvement of the health and sanitation of these areas.

The unified control that will be given by the Tarkwa Township Ordinance would appear to afford the solution. The application of similar legislation to all the established mining districts is strongly urged. All the declared mining areas would be excluded from the provisions of such a Township Ordinance where applied ; the Mining Health Areas Ordinance being in all respects adequate for the declared mining areas.

HOUSING AND FOOD SUPPLIES IN RELATION TO MINE LABOUR.

African labour employed in the mining industry is free and uncontrolled. The bulk of the labour is immigrant to the mining districts, and the chief source of supply is from the Northern Territories of the Gold Coast and adjacent Colonies under French Administration. On arrival at a mine, the labourer presents himself for employment, and probably for the first time is seen by a Medical Officer. After a medical examination, which has already been commented upon he receives his " ticket " for work either underground or on the surface. For housing he either applies for a room in a " Company " house or takes lodging in a slum hovel in the vicinity of the mine. The position with regard to company-owned houses varies widely in the different mines. A minority of the companies possess satisfactory and sanitary mine villages capable of accommodating the larger proportion of their labour. Other companies whilst accommodating an appreciable proportion of their labour, have only limited accommodation of a satisfactory sanitary standard, the remainder consisting of old insanitary mine-owned houses, relics of previous controlling companies. In a third category are companies, some employing several thousand labour, who can only offer a fraction of the accommodation necessary for the labour employed.

It is thus obvious that a large proportion of the 22,000 African mine workers in the Western Province have to depend upon the private landlord for shelter. A considerable part of the reason for the rapid growth of slum building in the mining districts can be attributed to this cause.

Now that the legal mechanism for the control of slum building is operative, the necessity for immediate and extensive housing schemes on the part of the mining companies will become pressing, if the supply of labour is to meet the demand. The slum areas have already become over saturated and the rents charged by the private landlord are tending to make the economical position of the mine labourer impossible on the present wage standards.

The mine labourer is dependent upon himself for subsistence. Food supplies sufficient to supply an adequate balanced dietary, which is of vital importance to the underground worker, in most of the mining districts are deficient in quantity and enhanced in price.

So long as the mine labourer is dependent upon private enterprise for his essential food supplies, the solution of this problem presents great difficulties.

LODE GOLD MINING AND ITS EFFECT ON THE HEALTH OF AFRICAN UNDERGROUND EMPLOYEES.

The investigation which should have commenced in 1938, had unavoidably to be postponed.

The Medical Officer of Health, with special knowledge and experience, who was selected for this work, received promotion outside the Colony, and at the moment has not been replaced.

It is hoped that this very essential investigation will be in full operation during the forthcoming year. The following extract from a recent inspection report on one of the larger lode gold mining companies on the Tarkwa Banket Reef is significant.

> "During the six months period, May to October, 1938, 50 cases of pulmonary tuberculosis were diagnosed among an African labour force of 3,894 daily average. It is impossible at the present juncture to hazard the real tuberculosis infectivity rate. The cases diagnosed were all well-established clinical cases. Conditions in the widest sense of the word are only too conducive to the spread of tuberculosis infection."

(Sgd.) HENRY P. FOWLER,
Senior Health Officer,
Western Province.

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